**THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

MOBILE TELECOMMUNICATIONS TECHNOLOGIES, LLC,	§§§	
v.	§§	CASE NO. 2:13-CV-883-JRG-RSP
AMAZON.COM, INC.	§§§§	

CLAIM CONSTRUCTION
MEMORANDUM AND ORDER

On October 17, 2014, the Court held a hearing to determine the proper construction of the

disputed claim terms in United States Patents No. 5,754,946 and 5,809,428. After considering

the arguments made by the parties at the hearing and in the parties' claim construction briefing

(Dkt. Nos. 58, 64, and 67),[1] the Court issues this Claim Construction Memorandum and Order.

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[1] Citations to documents (such as the parties' briefs and exhibits) in this Claim Construction Memorandum and Order shall refer to the page numbers of the original documents rather than the page numbers assigned by the Court's electronic docket.

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BACKGROUND

Plaintiff brings suit alleging infringement of United States Patents No. 5,754,946 ("the '946 Patent"), 5,786,748 ("the '748 Patent"), and 5,809,428 ("the '428 Patent") (collectively, the "patents-in-suit"). In general, the patents-in-suit relate to wireless messaging systems. The disputed terms appear in only the '946 Patent and the '428 Patent.

The '946 Patent is titled "Nationwide Communication System." The '946 Patent issued on May 19, 1998, and bears a filing date of September 21, 1993. In general, the terms of the '946 Patent that are in dispute here relate to avoiding retransmission of unneeded information. The Abstract of the '946 Patent states:

> A two-way communication system for communication between a system network and a mobile unit. The system network includes a plurality of base transmitters and base receivers included in the network. The base transmitters are divided into zonal assignments and broadcast in simulcast using multi-carrier modulation techniques. The system network controls the base transmitters to broadcast in simulcast during both systemwide and zonal time intervals. The system network dynamically alters zone boundaries to maximize information throughput. The system also uses a mobile unit which receives messages from the network and transmits messages to the network. The mobile unit includes a switch that allows a user to request the network to retransmit a received message that contains errors.

The '428 Patent is titled "Method and Device for Processing Undelivered Data Messages in a Two-Way Wireless Communications System." The '428 Patent issued on September 15, 1998, and bears a filing date of July 25, 1996. In general, the '428 Patent relates to acknowledging receipt of data messages and probe messages. The Abstract of the '428 Patent states:

> A network operations center transmits a data message to a wireless mobile unit and waits for a data acknowledgment message. If no acknowledgment is received within a specified time, the network operations center sends a probe message to attempt to locate the mobile unit and waits for a probe acknowledgment message. If still no acknowledgment, the network operations center marks the data message as undelivered and stores it for future delivery. If a mobile unit receives a probe message while its transmitter is powered off, it displays an indication to the

subscriber that there is a message waiting to be delivered. The subscriber can then dial into the network operations center to retrieve the message. Or, when the transmitter of the mobile unit is powered back on, the mobile unit sends a registration message to the network operations center; and upon receiving the registration message, the network operations center automatically re-transmits the undelivered data message to the mobile unit.

The Court previously addressed the patents-in-suit in *Mobile Telecommunications Technologies, LLC v. Sprint Nextel Corp., et al.*, No. 2:12-CV-832-JRG-RSP, Dkt. No. 162, (E.D. Tex. May 2, 2014) ("*Sprint Order*" or simply "*Sprint*"); *see* Civil Action Nos. 2:13-CV-258-JRG-RSP, 2:13-CV-259-JRG-RSP (consolidated with *Sprint*).

LEGAL PRINCIPLES

"It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). To determine the meaning of the claims, courts start by considering the intrinsic evidence. *See id.* at 1313; *see also C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir. 2004); *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). The intrinsic evidence includes the claims themselves, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1314; *C.R. Bard*, 388 F.3d at 861. Courts give claim terms their ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the entire patent. *Phillips*, 415 F.3d at 1312-13; *accord Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003).

The claims themselves provide substantial guidance in determining the meaning of particular claim terms. *Phillips*, 415 F.3d at 1314. First, a term's context in the asserted claim can be very instructive. *Id.* Other asserted or unasserted claims can aid in determining the

claim's meaning because claim terms are typically used consistently throughout the patent. *Id.*

Differences among the claim terms can also assist in understanding a term's meaning. *Id.* For

example, when a dependent claim adds a limitation to an independent claim, it is presumed that

the independent claim does not include the limitation. *Id.* at 1314-15.

"[C]laims 'must be read in view of the specification, of which they are a part.'" *Id.*

at 1315 (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en

banc)). "[T]he specification 'is always highly relevant to the claim construction analysis.

Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" *Phillips*,

415 F.3d at 1315 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir.

1996)); *accord Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). This

is true because a patentee may define his own terms, give a claim term a different meaning than

the term would otherwise possess, or disclaim or disavow the claim scope. *Phillips*, 415 F.3d

at 1316. In these situations, the inventor's lexicography governs. *Id.* The specification may also

resolve the meaning of ambiguous claim terms "where the ordinary and accustomed meaning of

the words used in the claims lack sufficient clarity to permit the scope of the claim to be

ascertained from the words alone." *Teleflex*, 299 F.3d at 1325. But, "[a]lthough the

specification may aid the court in interpreting the meaning of disputed claim language, particular

embodiments and examples appearing in the specification will not generally be read into the

claims." *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998)

(quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988));

accord Phillips, 415 F.3d at 1323.

The prosecution history is another tool to supply the proper context for claim

construction because a patent applicant may also define a term in prosecuting the patent. *Home*

Diagnostics, Inc., v. Lifescan, Inc., 381 F.3d 1352, 1356 (Fed. Cir. 2004) ("As in the case of the specification, a patent applicant may define a term in prosecuting a patent."). "[T]he prosecution history (or file wrapper) limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance." *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 452 (Fed. Cir. 1985).

Although extrinsic evidence can be useful, it is "less significant than the intrinsic record in determining the legally operative meaning of claim language." *Phillips*, 415 F.3d at 1317 (citations and internal quotation marks omitted). Technical dictionaries and treatises may help a court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but technical dictionaries and treatises may provide definitions that are too broad or may not be indicative of how the term is used in the patent. *Id.* at 1318. Similarly, expert testimony may aid a court in understanding the underlying technology and determining the particular meaning of a term in the pertinent field, but an expert's conclusory, unsupported assertions as to a term's definition are entirely unhelpful to a court. *Id.* Generally, extrinsic evidence is "less reliable than the patent and its prosecution history in determining how to read claim terms." *Id.*

The Supreme Court of the United States has recently "read [35 U.S.C.] § 112, ¶ 2 to require that a patent's claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014). "A determination of claim indefiniteness is a legal conclusion that is drawn from the court's performance of its duty as the construer of patent claims." *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1347

(Fed. Cir. 2005) (citations and internal quotation marks omitted), *abrogated on other grounds by Nautilus,* 134 S. Ct. 2120.

THE PARTIES' STIPULATED TERMS

The parties have reached agreement on constructions for certain terms, as stated in their Joint Claim Construction and Prehearing Statement (Dkt. No. 43 at Ex. A), their briefing (*see, e.g.,* Dkt. No. 58 at App'x 1), and their Joint Claim Construction Chart (Dkt. No. 69 at Ex. B). The parties' agreements are set forth in Appendix A to this Claim Construction Memorandum and Order.

CONSTRUCTION OF DISPUTED TERMS

Shortly before the start of the October 17, 2014 hearing, the Court provided the parties with preliminary constructions of the disputed terms with the aim of focusing the parties' arguments and facilitating discussion. Those preliminary constructions are set forth within the discussion of each term, below.

A. "probe message"

Plaintiff's Proposed Construction	Defendant's Proposed Construction
"a message that is generated to determine the location or status of a mobile unit for the purpose of determining whether the mobile unit can be reached"	"a message that is generated by the network operations center to locate a mobile unit"

Dkt. No. 58 at 4; Dkt. No. 64 at 8. The parties submit that this term appears in Claim 1 of the '428 Patent. Dkt. No. 43, Ex. A at 3.

In *Sprint*, the Court construed this disputed term to mean "a message that is generated to locate a mobile unit." *Sprint* at 48.

Shortly before the start of the October 17, 2014 hearing, the Court provided the parties with the following preliminary construction: "a message that is generated to locate a mobile unit."

Plaintiff submitted that its proposal of "or status" is appropriate because "the term 'locate' might be incorrectly understood by the jury to be limited to only a geographic location rather than, for example, a network location." Dkt. No. 58 at 4. Plaintiff explained: "A juror today is likely to own a smartphone and have experience with location based services, such as GPS navigation or 'Find My Phone' technology, which utilize specific locations through GPS." *Id.* Plaintiff argued that "[w]hat is equally clear, however, is that the '428 Patent's reference to 'location' is with respect to network components—i.e., the base station." *Id.* at 5 (citing '946 Patent at 5:34-37). Plaintiff urged that its proposed construction is consistent with the claims because: "Claim 4, like all claims of the '428 Patent, pivots upon whether the mobile unit was reached or was not reached. . . . Nowhere in Claim 4, nor in any other claim of the '428 Patent, does the geographic location of the mobile unit have any specific relevance." *Id.* at 6. Plaintiff concluded that Defendant's proposed construction "may be interpreted by the Jury as reading out a preferred embodiment and should therefore be rejected." *Id.*

Plaintiff also submitted that, in *Sprint*, this Court rejected a proposal to require that a probe message must be "generated by the network operations center." Dkt. No. 58 at 4. Plaintiff argues that "[t]he claims already disclose where the messages originate." *Id.* at 6.

Defendant responded that "if [Plaintiff's] construction were accepted, the claims would read on messages generated *only* to determine status, a construction contradicted by the intrinsic evidence and the intent of the inventors." Dkt. No. 64 at 8. Defendant urged that "[t]he term 'status' does not appear anywhere in the specification or claims, and [Plaintiff] fails to explain

what 'status' means." *Id.* Further, Defendant argued, the reference to "location" in the *Sprint* construction is clear because location is approximated based on the location of the base receiver that receives the acknowledgement signal. *Id.* at 9. Defendant further argued that any other functions of probe messages, such as determining the cause of a communication failure, are additional functions, not alternative functions. *Id.* at 9-10. Finally, Defendant submitted that "[g]iven that there is no disagreement as to the source of the probe message, the term should be construed to require that it is generated by the NOC [(network operations center)] to provide additional clarity as to its meaning and resolve any potential ambiguity." Dkt. No. 64 at 12.

Plaintiff replied that a person having ordinary skill in the art "would not have understood the term locate to require a particular geographic location (such as latitude and longitude coordinates), or that a probe message to [*sic*] contain any message content at all (for instance a query to the mobile unit seeking or inquiring about the location of a mobile unit)." Dkt. No. 67 at 3. Plaintiff submitted that its proposed construction "makes clear that the 'location' of a mobile unit does not necessarily mean a geographic location, but rather a network location— including whether a unit is even located in the network (that is, its status in the network)." *Id.*

At the October 17, 2014 hearing, Plaintiff reiterated that "location" in the '428 Patent does not refer to Global Positioning System ("GPS") coordinates or latitude and longitude. Plaintiff nonetheless stated its willingness to drop the phrase "or status" from its proposed construction in an effort to reach agreement. As to Defendant's proposal of requiring a message generated "by the network operations center," Plaintiff agreed that Defendant's proposal is correct as to the '428 Patent, but Plaintiff expressed concern that, based on the general rule that the same term has the same meaning across related patents, Defendant's proposed limitation

might be improperly imported into other related patents in the future if the Court adopts Defendant's proposal here.

In response, Defendant maintained that "by the network operations center" should be included for clarity. Defendant stated, however, that it is not arguing that "location" must be limited to GPS coordinates or latitude and longitude. Defendant was also willing to accept the portion of Plaintiff's proposed construction that states a probe message is generated "for the purpose of determining whether the mobile unit can be reached."

The Court therefore hereby adopts the following construction for **"probe message"** agreed-upon by the parties at the October 17, 2014 hearing: **"a message that is generated by the network operations center to locate a mobile unit for the purpose of determining whether the mobile unit can be reached."** The Court nonetheless notes that the parties have agreed upon this construction as to the '428 Patent only.

B. "a portion of the [displayed] message"

"a portion of the displayed message" ('946 Patent, Claims 1 & 8)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
"less than the entire message that is partially displayed"	"less than the entire displayed message"
"a portion of a displayed message" ('946 Patent, Claim 7)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
"less than the entire message that is partially displayed"	"less than an entire displayed message"

"a portion of the message" ('946 Patent, Claim 7)	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**
"less than the entire message that is partially displayed"	"less than the entire message"

Dkt. No. 58 at 7; Dkt. No. 64 at 5.

Defendant proposes the constructions that the Court reached in *Sprint*. *See Sprint* at 21-25.

Shortly before the start of the October 17, 2014 hearing, the Court provided the parties with the following preliminary constructions: "a portion of the displayed message" means "less than the entire displayed message"; "a portion of a displayed message" means "less than an entire displayed message"; and "a portion of the message" means "less than the entire message."

(1) The Parties' Positions

Plaintiff submits: "The heart of the parties' dispute is whether 'the message' . . . refers to the initial, incomplete message that is received on a mobile device, or whether it refers to the final, complete message. It is [Plaintiff's] position that 'the message' can only be referring to the latter and that it would be nonsensical for it to refer to the initially displayed, incomplete message." Dkt. No. 58 at 7. "[R]etransmission of incomplete or error-filled data," Plaintiff argues, "merely results in another incomplete or error-filled message. This would not satisfy the '946 Patent's goal of a corrected and complete message upon user request." *Id.* at 8. Finally, Plaintiff clarifies that "the claims' reference to a 'portion of the displayed message' refers to a portion of the fully displayed message." *Id.*

Defendant responds that it agrees with the Court's constructions in *Sprint*, and Defendant submits that "[Plaintiff's] proposed construction would allow it to read the claims on a part of a

message that has *not yet been transmitted* to, received by, or displayed on the mobile unit, such as an attachment to an email (which resides on an external server)." Dkt. No. 64 at 5. Defendant further explains: "a user cannot '*specify* a portion of the *displayed* message . . . after *viewing* the *displayed* message' if the message has not been displayed. Similarly, a user cannot 'receive' a message that has not yet been received, or 'desire *retransmission* of a *displayed* message' if the message has not already been transmitted and displayed." *Id.* at 6. Defendant concludes that "the claims require that the 'portion of the displayed message' be a part of a message that has already been transmitted to, received by, and displayed on the mobile unit." *Id.* Finally, as to extrinsic evidence, Defendant has cited deposition testimony of named inventor William Hays:

> Q. Is there any way conceivable . . . that a user could request retransmission of a portion of a message without first having received that message in the original transmission?
>
> [Objection]
>
> A. I don't know how you would do that.

Id., Ex. 9, 3/31/2014 Hays dep. at 246:8-14.

Plaintiff replies that "[t]he cause or reason for the retransmission request is simply not part of the independent claims." Dkt. No. 67 at 1. Plaintiff also submits that "the patent discusses a message *retransmitted* even when it was never previously transmitted by the same network component." *Id.* at 2 (citing '946 Patent at 8:44-49 ("The data is then received and retransmitted by satellite 606 to satellite downlink stations 608 and 610.")).

At the October 17, 2014 hearing, the parties presented competing views regarding whether clicking on an attachment icon (or perhaps a link) within an e-mail constitutes requesting retransmission of a portion of a message. Defendant argued that the disclosure of a "request . . . to retransmit" refers to a portion that has been displayed because the next sentence

in the specification states: "When the mobile unit receives a message containing errors, it displays the message on display 1606 with the *erroneous portions highlighted* (e.g., underlined, placed in brackets, or printed in reverse video)." '946 Patent at 17:8-14 (emphasis added). Defendant has also cited prosecution history excerpts that were made of record in *Sprint*. *See* Def.'s 10/17/2014 Hr'g Slides at 18-19; *see Sprint*, Dkt. No. 110 at 16 n.16 (citing *id.*, Ex. 13 at pp. 3 & 5 of 8).

Plaintiff responded by reiterating, for example, that "retransmission" can refer to network elements passing a message along, such as disclosed in the specification. *See* '946 Patent at 8:42-52 (disclosing data being "retransmitted" through a satellite). Plaintiff argued that whether an e-mail attachment is a portion of a "message" that has been sent to a user raises factual infringement issues that cannot be universally resolved as a matter of claim construction.

(2) Analysis

In *Sprint*, the parties primarily disputed whether a "portion" can include the entire "displayed message" or instead must refer to something less than the entire message. *See Sprint* at 22. Based on the specification and the prosecution history, the Court concluded that "a portion of a message" is something less than an entire message. *Id.* at 24.

Here, the parties primarily dispute the meaning of "message" or "displayed message." On one hand, the specification refers to the "message" as something that might not be received or might not be received completely or properly:

> If the mobile unit 624 does not completely receive the message, it can generate and broadcast a negative acknowledge signal. The negative acknowledge signals when delivered to the network operations center 600, indicates [*sic*] that retransmission of the message is necessary.

'946 Patent at 9:26-30.

A set of input switches 1516 is provided to allow the user to input a reply to a received message, or to otherwise generate a message to be transmitted by the mobile transceiver. The input switches 1516 also include a switch that allows the user to request retransmission of a message corrupted by errors.

Id. at 15:38-40.

With the six button reply option provided by mobile transceiver 1500, a three bit message may be transmitted by the mobile transceiver to the base receivers. The two remaining states of the three bit message may be used by the transmit logic 1518 for the autonomous acknowledgment signal which indicates that the message has been properly received, and for the autonomous negative acknowledgment signal which indicates that the *message has not been completely or properly received*.

The request retransmission button 1622 allows the user to request the base transmitters to *retransmit received messages, or partial messages containing errors*. When the mobile unit receives a message containing errors, it displays the message on display 1606 with the *erroneous portions highlighted* (e.g., underlined, placed in brackets, or printed in reverse video). The user reads the message and determines whether the displayed message is acceptable. If not, the user can cause the system to *retransmit the message, or the erroneous portions*, by pressing request retransmission button 1622. By pressing button 1622, the user causes the transmit logic 1518 to transmit a signal to the base receivers indicating that the user wishes the message or a partial message to be retransmitted. The base transmitters then retransmit the message to the mobile unit at an appropriate time.

Id. at 16:66-17:23 (emphasis added).

On the other hand, Claims 1, 7, and 8 of the '946 Patent recite (emphasis added):

1. A mobile unit for transmitting and receiving radio frequency signals to and from a communications network comprising:
    means for receiving a radio frequency message from the network;
    a display for displaying said message;
    a switch actuatable to *specify a portion of the displayed message for which a user desires retransmission from the communications network*;
    means for transmitting, only upon actuation of the switch, a signal to the communications network requesting retransmission of said specified portion of said message; and
    means for receiving said specified portion retransmitted from the communications network and for displaying the received specified portion on the display.

7. A communications network for transmitting radio frequency signals to a mobile unit and for receiving radio frequency signals from the mobile unit, the mobile unit having a display and a switch actuatable to specify a portion of a displayed message for which a user desires retransmission after viewing the displayed message transmitted from the communications network, the network comprising:

        means for transmitting radio frequency signals containing a message to the mobile unit;

        means for receiving, from the mobile unit, radio frequency signals representing *a portion of the message that the user desires retransmission*;

        means for retransmitting radio frequency signals containing the portion of the message to the mobile unit.

8. A method for receiving and transmitting messages at a mobile unit, comprising the steps of:

        receiving at the mobile unit a radio frequency message;

        displaying said message on the mobile unit;

        receiving an *indication of a portion of the displayed message for which a user desires retransmission*;

        transmitting, only upon receipt of the indication, a signal requesting retransmission of said indicated portion of said message;

        receiving a retransmission of said indicated portion; and

        displaying the received retransmission of said indicated portion on the mobile unit.

Defendant's position, although not belied by the language of their proposed construction, is actually quite extreme: the only data that would qualify as a "retransmission" is the *exact* data that was previously displayed on the screen of the end user's device, errors and all. As the Court observed at the Claim Construction Hearing, this proposal has the untenable extension of requiring retransmission of "exactly the garbled message that you got the first time." Dkt. No. 75 at 89. When confronted with this issue, Defendant first seemed to acknowledge that such an interpretation is not necessarily supported by the specification, but then conceded that their position was that "the description of a displayed message in the context of this particular patent would include the garbled language." *Id.* at 89, 90. The Court does not find support for Defendant's position in the intrinsic record, and observes that defining "displayed message" and

"retransmission" in the manner requested by Defendant would directly conflict with the primary embodiments discussed in the specification.

On balance, the above-quoted intrinsic evidence demonstrates that "message" and "displayed message" are not limited to the exact text displayed on an end user's device. Instead, the terms "message" and "displayed message" serve to distinguish between different messages, each of which might be viewed in part or in whole by a user. The Court therefore rejects Defendant's argument that retransmission of message portions can be requested only as to message portions that have actually been displayed.

As to what is necessary to constitute "retransmission," and as to whether e-mail attachments meet the limitations at issue, such issues involve details of the accused instrumentalities that are not proper for the Court to consider during these claim construction proceedings. *See PPG Indus. v. Guardian Indus. Corp.*, 156 F.3d 1351, 1355 (Fed. Cir. 1998) ("[A]fter the court has defined the claim with whatever specificity and precision is warranted by the language of the claim and the evidence bearing on the proper construction, the task of determining whether the construed claim reads on the accused product is for the finder of fact.").

Thus, the Court reaches the same constructions here as in *Sprint* (*see Sprint* at 21-25), as set forth in the following chart:

Term	Construction
"a portion of the displayed message"	**"less than the entire displayed message"**
"a portion of a displayed message"	**"less than an entire displayed message"**
"a portion of the message"	**"less than the entire message"**

C. Claim 8 of the '428 Patent

Plaintiff's Proposed Construction	Defendant's Proposed Construction
No construction necessary; plain and ordinary meaning	Steps (c), (d) are not limiting and step (e) cannot be performed.

Dkt. No. 58 at 9; Dkt. No. 64 at 12.

Shortly before the start of the October 17, 2014 hearing, the Court provided the parties with the following preliminary construction: "No construction is necessary aside from finding that the data messages recited in steps (c), (d), and (e) are not necessarily the same as the data message recited in steps (a) and (b) of Claim 8 of the '428 Patent."

(1) The Parties' Positions

Plaintiff submits that the claim language is clear on its face that "[a]n infringing device . . . would be one that can perform both the steps of: (1) transmitting a probe message from the network operations center to the mobile unit if, after transmitting a data message to the mobile unit, no data acknowledgment message is received at the network operations center; and (2) marking at the network operations center a data message as undelivered if no probe acknowledgment message is received at the network operations center, and also storing that undelivered message." Dkt. No. 58 at 9-10.

Defendant argues that "Claim 8 is indefinite and nonsensical because the requisite steps will not and cannot ever be performed." Dkt. No. 64 at 12. Defendant explains: "because step (b) is unconditionally required by the claim so that a data acknowledgment message must be received by the network operations center, neither steps (c), (d), nor (e) can occur, rendering the claim indefinite." *Id.* at 14.

Plaintiff replies:

Steps (c), (d), and (e) do not refer back to the data message referenced in steps (a) and (b), nor is there even an antecedent for the message referenced in steps (c), (d), and (e). Step (c) references "*a*" data message—not "the" or "said" data message. Even ignoring the absence of any definite article ("the" or "said"), the reference to a "data message" does not compel the conclusion that the *same* data message is referenced in each of the steps.

Dkt. No. 67 at 4. Further, Plaintiff argues, "the steps of a method claim may be performed in any order unless the claim dictates otherwise. It is therefore equally appropriate and logical for a practitioner of the claimed method to transmit a probe message, mark and store a data message (steps c-d) and then later successfully transmit the data message (steps a-b)." *Id.* at 5 (footnote omitted).

At the October 17, 2014 hearing, the parties presented no oral arguments as to this disputed term.

(2) Analysis

"A method patent claims a number of steps; . . . the patent is not infringed unless all the steps are carried out." *Limelight Networks, Inc. v. Akamai Techs., Inc.*, 134 S. Ct. 2111, 2117 (2014).

Claim 8 of the '428 Patent recites (emphasis added):

8. In a two-way wireless communications system, a method of processing data messages that cannot be successfully transmitted from a network operations center to a wireless mobile unit comprising the steps of:
    (a) transmitting *a data message* from the network operations center to the mobile unit;
    (b) *receiving* at the network operations center *a data acknowledgment message* from the mobile unit acknowledging receipt of *the data message* sent by the network operations center;
    (c) transmitting a probe message from the network operations center to the mobile unit *if*, after transmitting *a data message* to the mobile unit, *no data acknowledgment message is received* at the network operations center;
    (d) marking at the network operations center *a data message* as undelivered *if*, after transmitting a probe message to the mobile unit, *no probe acknowledgment message is received* at the network operations center; and
    (e) storing at the network operations center *the undelivered data message*.

"It is of course true that method steps may be contingent. If the condition for performing a contingent step is not satisfied, the performance recited by the step need not be carried out in order for the claimed method to be performed." *Cybersettle, Inc. v. Nat'l Arbitration Forum, Inc.*, 243 F. App'x 603, 607 (Fed. Cir. 2007)

Defendant properly notes that whereas steps (c), (d), and (e) are conditioned on the *non-occurrence* of step (b), step (b) is recited as mandatory. In other words, step (b) does not recite merely listening for a data acknowledgement message. Instead, step (b) expressly recites that a data acknowledgement message must actually be received at the network operations center. *See NTP, Inc. v. Research In Motion, Ltd.*, 418 F.3d 1282, 1318 (Fed. Cir. 2005) ("Because a process is nothing more than the sequence of actions of which it is comprised, the use of a process necessarily involves doing or performing each of the steps recited."); *see also Cybersettle*, 243 F. App'x at 607 (noting that "the 'receiving' steps of claim 1 contain no conditional language").

Nonetheless, Plaintiff is correct that steps (c) and (d) recite "a data message," which does not necessarily refer to the same "data message" recited in steps (a) and (b). Because Defendant's indefiniteness argument is premised on steps (c) and (d) referring to the same data message recited in steps (a) and (b), Defendant's indefiniteness argument is hereby expressly rejected.

Alternatively and in addition, Defendant has failed to demonstrate that the existence of superfluous conditional steps necessarily renders a claim indefinite. Defendant has cited *Michael S. Sutton Ltd. v. Nokia Corp.*, but that case involved a logical conflict within a claim rather than merely the recital of superfluous conditional steps. *See* 647 F. Supp. 2d 737, 742-745 (E.D. Tex. 2009), *aff'd* 405 Fed. App'x 486 (Fed. Cir. 2010).

No further construction is necessary aside from the finding, above, that the data messages recited in steps (c), (d), and (e) are not necessarily the same as the data message recited in steps (a) and (b) of Claim 8 of the '428 Patent.

D. "means for extracting a corrected message from the radio frequency signal"

Plaintiff's Proposed Construction	Defendant's Proposed Construction

Function:
    "extracting a corrected message from the radio frequency signal"
 	
Structure:
    "circuitry within the mobile unit that performs the Transform, such as a Fast Fourier Transform"
 	
Alternatively:
    "display and storage logic 1508"
	Function:
	    "extracting a corrected message from the radio frequency signal"
	
	Structure:
	    "display and storage logic section 1508 or 1708, and an error correcting code"

Dkt. No. 58 at 10; Dkt. No. 64 at 30; Dkt. No. 69, Ex. A at 2. The parties submit that this disputed term appears in Claim 3 of the '946 Patent. Dkt. No. 43, Ex. A at 3. The parties agree upon the claimed function but dispute the corresponding structure.

Shortly before the start of the October 17, 2014 hearing, the Court provided the parties with the following preliminary construction: "Function: 'extracting a corrected message from the radio frequency signal' / Corresponding Structure: 'display and storage logic section 1508 or 1708, and an error correcting code; and equivalents thereof.'"

(1) The Parties' Positions

Plaintiff submits that despite its proposed structure, Plaintiff "is willing, however, to accept that the Display and Storage Logic 1508 performs the function." Dkt. No. 58 at 10-11. Plaintiff nonetheless maintains that Defendant's proposal of requiring "an error correcting code" ("ECC") is improper because "the ECC is not capable of performing the recited function as the

ECC is not initially separated from the corrected message." *Id.* at 11. "Furthermore," Plaintiff

argues, "construing the term to include the ECC as part of the associated structure is improper

because it would mean that the ECC is both the target of the claimed function and the structure

that corresponds to that function." *Id.* Plaintiff further explains that "when the claimed function

is performed, the ECC is extracted along with the corrected message and cannot, therefore, be

used to perform that function." *Id.* Plaintiff concludes that "[b]ecause the ECC is received and

acted upon in conjunction with the message signal, it is incapable of performing the recited

function." *Id.*

Defendant responds by citing the opinion of its expert that "the error correcting code is

necessary to extract the corrected message from the radio frequency signal." Dkt. No. 64 at 30

(citing *id.*, Ex. 8, 8/11/2014 First Supplemental Expert Report of William H. Beckmann, Ph.D.,

Regarding the Construction of Certain Claim Limitations of U.S. Patent No. 5,754,946 at ¶ 11).

Plaintiff replies: "Because the claim language itself shows that the error correction code

is part of what is extracted by the means for extracting, it cannot logically be part of the structure

that performs function of extracting. This clear intrinsic record trumps [Defendant's]

manufactured extrinsic evidence." Dkt. No. 67 at 4.

At the October 17, 2014 hearing, the parties presented no oral arguments as to this

disputed term.

(2) Analysis

Title 35 U.S.C. § 112(f)[2] provides: "An element in a claim for a combination may be

expressed as a means or step for performing a specified function without the recital of structure,

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[2] The Leahy-Smith America Invents Act ("AIA") modified former 35 U.S.C. § 112, ¶ 6 such that
the statute can now be found at 35 U.S.C. § 112(f). It appears that the pre-AIA version applies to
the patents-in-suit, but the amendment has no effect on the Court's analysis.

material, or acts in support thereof, and such claim shall be construed to cover the corresponding

structure, material, or acts described in the specification and equivalents thereof." Further, "[t]he

scope of a claim under [35 U.S.C.] section 112[(f)] . . . must be limited to structures *clearly*

linked or associated with the claimed function in the specification or prosecution history and

equivalents of those structures." *Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 344

F.3d 1205, 1219 (Fed. Cir. 2003) (emphasis added).

"A disclosed structure is corresponding only if the specification or the prosecution history

clearly links or associates that structure to the function recited in the claim. In other words, the

structure must be necessary to perform the claimed function." *Omega Eng'g v. Raytek Corp.*,

334 F.3d 1314, 1321 (Fed. Cir. 2003) (citations and internal quotation marks omitted).

Because Plaintiff is now willing to substantially accept Defendant's proposal of the

"display and storage logic section 1508 or 1708" as corresponding structure (*see* Dkt. No. 58

at 10-11), the remaining dispute is whether an error correcting code is necessary for performing

the agreed-upon function of "extracting a corrected message from the radio frequency signal."

Claim 3 of the '946 Patent depends from Claim 1. Claims 1 and 3 of the '946 Patent

recite (emphasis added):

> 1. A mobile unit for transmitting and receiving radio frequency signals to and
> from a communications network comprising:
>> means for receiving a radio frequency message from the network;
>> a display for displaying said message;
>> a switch actuatable to specify a portion of the displayed message for which
> a user desires retransmission from the communications network;
>> means for transmitting, only upon actuation of the switch, a signal to the
> communications network requesting retransmission of said specified portion of
> said message; and
>> means for receiving said specified portion retransmitted from the
> communications network and for displaying the received specified portion on the
> display.
>
> * * *

3. The mobile unit of claim 1, further comprising:
        means for receiving a radio frequency signal from the communication
network including a retransmitted message and an *error correcting code*; and
            means for extracting a corrected message from the radio frequency signal.

Defendant's expert, Dr. Beckmann, opines:

> 11. If a message uses an error correcting code ("ECC"), the application of the
> ECC to the message is done prior to any transmission. The message and
> associated ECC may then be transmitted via a transformed radio signal, as
> described above. Upon receipt of the radio signal by the receiving device, an
> inverse Transform will be applied in order to convert the transformed radio signal
> back to the original message with the associated ECC. (*See* '946 patent, 14:52-
> 65.) *After the application of this Transform*, this message with the associated
> ECC must then be processed, using the obtained ECC, in order to correct the
> message. (*See* '946 patent, 15:24-27.) It is this subsequent processing, after
> Transform of the radio signal, which comports with the agreed-upon claim
> function of "extracting a corrected message from the radio frequency signal."

Dkt. No. 64, Ex. 8 at ¶ 11. Although this extrinsic expert opinion may be considered, it is of less

weight than the claim language and the disclosures in the specification. *See, e.g., Phillips*, 415

F.3d at 1319 ("[E]xtrinsic evidence may be useful to the court, but it is unlikely to result in a

reliable interpretation of patent claim scope unless considered in the context of the intrinsic

evidence.").

> The specification discloses:

> In a conventional communication system, the transmitters transmit messages in
> blocks to a mobile unit, each block including an *error correcting code*. When a
> block is received by the mobile unit, the mobile unit uses the *error correcting
> code* to determine whether the block has been received correctly. If the mobile
> unit determines that the block has not been received correctly, the mobile unit
> automatically sends a message back to the communication system requesting
> retransmission of that particular block. The system then retransmits the block to
> the mobile unit and the mobile unit reassembles the block into the proper portion
> of the message. This technique ensures that messages are accurate, but consumes
> a great deal of air time, driving up the costs of mobile messaging, often
> needlessly. Therefore, it would be desirable to reduce the needless retransmission
> of some message blocks to reduce costs and conserve system resources.

'946 Patent at 4:41-57 (emphasis added)

The receiver 1506 is connected to a *display and storage logic section 1508 to process the received signal*. An annunciator 1510 to alert the user that a message has been received is connected to and controlled by the display and storage logic 1508. The annunciator 1510 may commonly include a sound producing device such as a beeper, or a vibrator, or a flashing light.

* * *

Display and storage logic 1508 is connected to transmit logic 1518 via connection 1526. Display and storage logic 1508 may generate an autonomous acknowledge signal which causes the transmitter 1520 to broadcast an appropriately modulated RF signal. As previously discussed, it is desirable for the mobile transceiver to transmit an acknowledge signal if the message was properly received by the mobile unit, or alternatively to transmit a negative acknowledge signal if the message was only partially received. The negative acknowledge signal indicates that the network operations center should rebroadcast the message to the mobile unit.

Preferably, the rebroadcast of the message to the mobile unit should occur with an appropriate *error correcting code* which may be decoded by the mobile unit to insure complete and accurate reception of the message. Of course, *error correcting codes* should be used only when necessary because their use slows data transfer and increases the complexity of the mobile unit. Other types of autonomous replies may also be useful, for example, to indicate to the network operations center that the user has not viewed the message even though the mobile unit properly received it, such as when the mobile transceiver is unattended by the user.

Id. at 14:66-15:35 (emphasis added).

H. The Preferred System Communication Protocol

The system communication protocol is preferably a time division protocol organized within repetitive communication cycles of preferably 30 seconds in duration.

* * *

A preferred cycle protocol 2700 is shown in FIG. 27(A). The cycle protocol 2700 includes a cycle header time interval 2702, ...

* * *

The cycle header 2702 starts preferably with an 8 digit long preamble (not shown) for digit synchronization purposes. The preamble allows for the mobile unit to synchronize its timing circuitry with the network. For example, the timing

circuitry of the mobile unit could become offset from the network due to commonly caused inaccuracies. The preamble is followed by a "start of header" string of four digits and all timing offsets within the cycle are calculated as a number of predefined intervals beginning from the start of the last header digit. The start of header string is followed by an 8 digit string grouped into two words, each of which is protected against errors by encoding it using a forward *error correcting code*, preferably a Bose, Chaudhuri, and Hocquenghem (BCH) code or a Reed Solomon code. These *error correcting codes* add additional digits to the information digits in a code word, where the additional digits are a specific function of the information digits, so that if certain common error events occur, a decoding step involving all of the transmitted digits, both information and additional, can recover the original information digits. The first code word will contain a count of the current cycles executed for that day. The second code word will contain the necessary timing offsets for the beginning of the time intervals in the cycle protocol 2700. Further information regarding *error correcting codes* may be found in Gallagher, "Information Theory and Reliable Communication," Wiley 1968, which is hereby incorporated by reference.

Id. at 24:45-26:19 (emphasis added).

On balance, these disclosures are consistent with the above-quoted opinion of Dr. Beckmann that the claimed function of "extracting a corrected message from the radio frequency signal" necessarily involves the "error correcting code." Of particular note, the recital of extracting a "*corrected* message" provides a linkage between the claimed function and the error correcting code, which is also recited in Claim 3 itself. *See Omega Eng'g*, 334 F.3d at 1321.

The Court therefore hereby finds that for the **"means for extracting a corrected message from the radio frequency signal,"** the function is **"extracting a corrected message from the radio frequency signal,"** and the corresponding structure is **"display and storage logic section 1508 or 1708, and an error correcting code; and equivalents thereof."**

E. "means for determining whether an acknowledgment message is an acknowledgment to a data message or an acknowledgment to a probe message"

Plaintiff's Proposed Construction	Defendant's Proposed Construction

Function:
   "determining whether an acknowledgment message is an acknowledgement to a data message or an acknowledgment to a probe message"
 	
Structure:
   "acknowledgment message processing (AMP) module 310; and equivalents thereof"
	Function:
	   "determining whether an acknowledgment message is an acknowledgement to a data message or an acknowledgment to a probe message"
	
	Structure:
	   Indefinite

Dkt. No. 58 at 17; Dkt. No. 64 at 17. The parties submit that this disputed term appears in

Claim 1 of the '428 Patent. Dkt. No. 43, Ex. A at 5.

Shortly before the start of the October 17, 2014 hearing, the Court provided the parties

with the following preliminary construction: "Indefinite for failure to disclose an algorithm."

(1) The Parties' Positions

Plaintiff argues that the *Katz* exception (discussed below) applies "because the function

of 'determining a message type' is a function that a general purpose computer (*e.g.*, the

modules/processors and memory) could perform at the time of the invention. . . . Determining a

message type involves only the general computing tasks of processing (i.e., is the message

type A or type B?)." Dkt. No. 58 at 18.

Alternatively, Plaintiff argues that "the '428 Patent discloses that the invention could be

performed by non-computer hardware such as logic circuitry," and Plaintiff also submits that

"the '428 Patent discloses algorithms," in particular the "if-then-else algorithm in prose at 5:24-

34" as well as the algorithm illustrated in Figure 3. *Id.* at 18-19. Plaintiff argues that a person of

ordinary skill in the art would have found the disclosure to be sufficient because "the two types

of ACK [(acknowledgement)] messages are distinguished by, for example, a header or other

field within a transmission packet" and, alternatively or in addition, because "the AMP module 310 may determine the ACK type based on *when* it received the ACK." *Id.* at 19-20.

Defendant responds: "it cannot be reasonably disputed that a general purpose computer, right out of the box, is not capable of determining whether an acknowledgment message is an acknowledgment to a data message or an acknowledgment to a probe message." Dkt. No. 64 at 18. Further, Defendant argues, "while it is true that the specification states that the AMP module 'determines whether the message is a data acknowledgment message or a probe acknowledgment message,' there is no description of *how* the AMP module makes that determination." *Id.*[3] Finally, as to Plaintiff's reliance on disclosure of "logic circuitry," Defendant responds that "as the term 'logic circuitry' makes clear, there must be some logic, *i.e.*, an algorithm, programmed into the circuitry to perform the function and, as Dr. Beckmann [(Defendant's expert)] states, the specification does not describe how any logic circuitry would perform the 'determining' function." *Id.* at 20-21 (citing *id.*, Ex. 7, 8/1/2014 Expert Report of William H. Beckmann, Ph.D., Regarding the Constructions of Certain Claim Limitations of U.S. Patent No. 5,809,428 at ¶¶ 31-41).

Plaintiff replies that although "the structure that performs the claimed function must be identified in the written description of the patent," "to determine whether the structure in the specification is *sufficient* to perform the claimed function, the Court should look at the entire intrinsic record (*e.g.*, the prosecution history, parent patent, materials incorporated by reference, etc.) and consider what a PHOSITA [(person having ordinary skill in the art)] would bring to the

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[3] Defendant also cites deposition testimony of named inventor William Hays that "what I'm reading it doesn't have any description of how it would do it. It just simply says it does it." Dkt. No. 64, Ex. 12, 8/14/2014 Hays dep. at 78:16-20; *see id.* at 79:8-17 ("Q. . . . are you aware of anything in the '428 patent that describes how the AMP module performs that function? [Objection] A. . . . I don't see anything in that that describes it, no.").

understanding of the sufficiency of the identified structure." Dkt. No. 67 at 5-6. Further, Plaintiff argues, "[Defendant] and its expert argue in a largely conclusory fashion that the patent 'lacks requisite detail concerning how these claimed functions are implemented' but does not articulate what 'requisite detail' standard it is applying or what specific disclosure it believes is needed to fill in the alleged gaps." *Id.* at 9.

At the October 17, 2014 hearing, Plaintiff reiterated that the Court can look at all of the intrinsic evidence when evaluating the sufficiency of the disclosed structure. Plaintiff also argued that, as the party challenging validity, Defendant has failed to meet its burden to demonstrate that the disclosure of "electronic logic circuitry" is insufficient. *See* '428 Patent at 5:64 & 6:54.

Defendant responded that the corresponding structure must be an algorithm, not merely a "module," so the specification of the '428 Patent itself must contain an algorithm clearly linked to the claimed function. Defendant reiterated that the specification discloses no such algorithm.

(2) Analysis

"[A] means-plus-function claim element for which the only disclosed structure is a general purpose computer is invalid if the specification fails to disclose an algorithm for performing the claimed function." *Net MoneyIN Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1367 (Fed. Cir. 2008); *see WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999) ("In a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm.").

There is, however, an exception to the general rule requiring an algorithm. Specifically, when the corresponding structure is a general purpose computer, an algorithm is required *unless* the recited function can be achieved by any general purpose computer without special programming. *In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1316 (Fed. Cir. 2011) ("Absent a possible narrower construction of the terms 'processing,' 'receiving,' and 'storing,' . . . those functions can be achieved by any general purpose computer without special programming. As such, it was not necessary to disclose more structure than the general purpose processor that performs those functions."); *accord Ergo Licensing, LLC v. CareFusion 303, Inc.*, 673 F.3d 1361, 1365 (Fed. Cir. 2012) ("In *In re Katz*, we held that '[a]bsent a possible narrower construction' of the terms 'processing,' 'receiving,' and 'storing,' the disclosure of a general-purpose computer was sufficient. . . . In other words, a general-purpose computer is sufficient structure if the function of a term such as 'means for processing' requires no more than merely 'processing,' which any general-purpose computer may do without any special programming.") (citations omitted);[4] *but see id.* ("It is only in the rare circumstances where any general-purpose computer without any special programming can perform the function that an algorithm need not be disclosed.").

If an algorithm is required, that algorithm may be disclosed in any understandable form. *See Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1386 (Fed. Cir. 2011) ("Indeed, the

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[4] *See, e.g., Variant Holdings LLC v. Z Resorts LLC*, No. 2:11-CV-290-JRG, 2013 WL 1949857, at *32-*33 (E.D. Tex. May 9, 2013) (no algorithm required for "downloading"); *e-LYNXX Corp. v. Innerworkings, Inc.*, No. 1:10-CV-2535, 2012 WL 4484921, at *21 (M.D. Pa. Sept. 27, 2012) (no algorithm required for "receiving"); *United Video Properties, Inc. v. Amazon.com, Inc.*, No. CIV.A. 11-003-RGA, 2012 WL 2370318, at *11 (D. Del. June 22, 2012) (no algorithm required for displaying an icon); *Personalized Media Commc'n, LLC v. Motorola, Inc.*, No. 2:08-CV-70-CE, 2011 WL 4591898, at *40 (E.D. Tex. Sept. 30, 2011) (no algorithm required for "transferring said information from one of said decoder[s] to a processor").

mathematical algorithm of the programmer is not included in the specification. However, as precedent establishes, it suffices if the specification recites in prose the algorithm to be implemented by the programmer."); *see also Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1340 (Fed. Cir. 2008) (noting that "a patentee [may] express th[e] algorithm in any understandable terms including as a mathematical formula, in prose, or as a flow chart, or in any other manner that provides sufficient structure") (citation omitted); *TecSec, Inc. v. Int'l Bus. Machs.*, 731 F.3d 1336, 1348 (Fed. Cir. 2013) (quoting *Finisar*).

Nonetheless, the purported algorithm cannot "merely provide[] functional language" and must provide a "step-by-step procedure" for accomplishing the claimed function. *Ergo Licensing*, 673 F.3d at 1365; *see Rotatable Techs. LLC v. Nokia Inc.*, No. 2:12-CV-265, 2013 WL 3992930, at *4 (E.D. Tex. Aug. 2, 2013) (Gilstrap, J.), *aff'd on other grounds sub nom. Rotatable Techs. LLC v. Motorola Mobility LLC*, 567 F. App'x 941 (Fed. Cir. 2014). Further, "[i]t is well settled that simply disclosing software, however, without providing some detail about the means to accomplish the function, is not enough.'" *Function Media, L.L.C. v. Google, Inc.*, 708 F.3d 1310, 1318 (Fed. Cir. 2013) (citation and internal quotations and alterations omitted); *see Rotatable Techs.*, 2013 WL 3992930, at *4. Finally, when citing sections of the specification, a patentee should demonstrate "how these sections explain to one of ordinary skill in the art the manner in which the claimed functions are implemented." *Personalized Media*, 2011 WL 4591898, at *38; *see Function Media*, 708 F.3d at 1318 ("These citations all explain that the software automatically transmits, but they contain no explanation of how the PGP software performs the transmission function.").

Claim 1 of the '428 Patent recites (emphasis added):

1. A network operations center for transmitting and receiving messages to and from a wireless mobile unit comprising:

means for transmitting messages to the mobile unit;

means for receiving acknowledgment messages from the mobile unit;

means for determining whether an acknowledgment message is an acknowledgment to a data message or an acknowledgment to a probe message;

means for transmitting a probe message to the mobile unit if, after transmitting a data message to the mobile unit, no data acknowledgment message is received; and

means for marking a data message as undelivered and storing the undelivered data message if, after transmitting a probe message to the mobile unit, no probe acknowledgment message is received.

Defendant challenges the sufficiency of the structure identified by Plaintiff, arguing that because the structure amounts to a general-purpose computer, an algorithm is required.

The threshold inquiry, then, is whether the corresponding structure identified by Plaintiff is sufficient by itself or instead amounts to a general-purpose computer. Plaintiff proposes: "acknowledgment message processing (AMP) module 310; and equivalents thereof." Defendant appears to agree that this corresponds to the claimed function of determining whether an acknowledgment message is an acknowledgment to a data message or an acknowledgment to a probe message.

On one hand, in some contexts, a person of ordinary skill in the art could interpret disclosure of a proverbial "black box" (*i.e.*, disclosure of an element in terms of what it does, without any description of its internal structure or operation) as sufficient corresponding structure. *Cf. Telcordia Techs., Inc. v. Cisco Sys., Inc.*, 612 F.3d 1365, 1377 (Fed. Cir. 2010) (as to disclosure of "controllers" in specification, finding that "the absence of internal circuitry in the written description does not automatically render the claim indefinite. . . . [C]laim definiteness depends on the skill level of an ordinary artisan. Therefore, the specification need only disclose adequate defining structure to render the bounds of the claim understandable to an ordinary artisan.") (citations and internal quotation marks omitted)

On the other hand, the specification discloses that the "modules" are software or, alternatively, electronic logic circuitry. '428 Patent at 5:59-6:1. At the October 17, 2014 hearing, Plaintiff cited several authorities for the proposition that "electronic logic circuitry" is sufficient corresponding structure and is not a general-purpose computer. *See Tech. Patents LLC v. Deutsche Telekom AG*, 774 F. Supp. 2d 732, 757 (D. Md. 2010) ("server" found to be adequate corresponding structure); *see also Alt v. Medtronic, Inc.*, No. 2:04-CV-370, 2005 WL 6225306 (E.D. Tex. Nov. 30, 2005) (Davis, J.); *Arbitron v. Int'l Demographics Inc.*, No. 2:06-CV-434, 2009 WL 68875, at *12 (E.D. Tex. Jan. 8, 2009) (Ward, J.).

On balance, the structure proposed by Plaintiff amounts to a general-purpose computer, thereby triggering the algorithm requirement. *See WMS Gaming*, 184 F.3d at 1349; *see also HTC Corp. v. IPCom GmbH & Co., KG*, 667 F.3d 1270, 1280 (Fed. Cir. 2012) ("The processor and transceiver amount to nothing more than a general-purpose computer."). Plaintiff's reliance on disclosure of "electronic logic circuitry" is insufficient because that phrase refers to basic components rather than any particular "logic." The authorities cited by Plaintiff, above, are unavailing. *See, e.g., Alt*, 2005 WL 6225306, at *5 (distinguishing *WMS Gaming* because "[l]ogic circuit 12 is a special purpose circuit and is not of a programable [*sic*] nature" and "the functionality of logic circuit 12 is sufficiently described in the specification"). The opinions of Plaintiff's expert to the contrary are also unavailing. *See* Dkt. No. 58, Ex. P, 8/1/2014 Declaration of Dr. Ray W. Nettleton at 18-20.

The *Katz* exception to the algorithm requirement does not apply because "determining whether an acknowledgment message is an acknowledgment to a data message or an acknowledgment to a probe message" is not analogous to functions such as "processing," "receiving," or "storing" that can be performed by any general-purpose computer. *See In re*

Katz, 639 F.3d at 1316. The opinions of Plaintiff's expert to the contrary are unavailing. *See*

Dkt. No. 58, Ex. P, 8/1/2014 Declaration of Dr. Ray W. Nettleton at 23 ("It is my opinion that

'determining' is akin to 'processing' and 'storing,' which I understand have been found can be

achieved by any general purpose computer without special programming."); *see also id.* at 23-26.

The Court therefore turns to whether the '428 Patent discloses a sufficient algorithm. *See*

Net MoneyIN, 545 F.3d at 1367; *see also WMS Gaming*, 184 F.3d at 1349.

The specification discloses what Plaintiff has described as an "if-then-else algorithm" for

performing the claimed function:

> As AMP [(acknowledgement message processing)] module 310 receives an
> acknowledgment message from MTD module 302, it first *determines whether the*
> *message is a data acknowledgment message or a probe acknowledgment*
> *message*. If it is the former, then AMP module 310 indicates to DMP module 304
> to forward to message transmitting unit 108 the next data message in memory
> storage unit 110 waiting to be delivered to that subscriber. If it is the latter, then
> AMP module 310 updates in memory storage unit 110 the location of mobile unit
> 200 and indicates to DMP module 304 to re-send the last data message to message
> transmitting unit 108.

'428 Patent at 5:24-34 (emphasis added); *see* Dkt. No. 58 at 19. This disclosure relates to Figure 3,
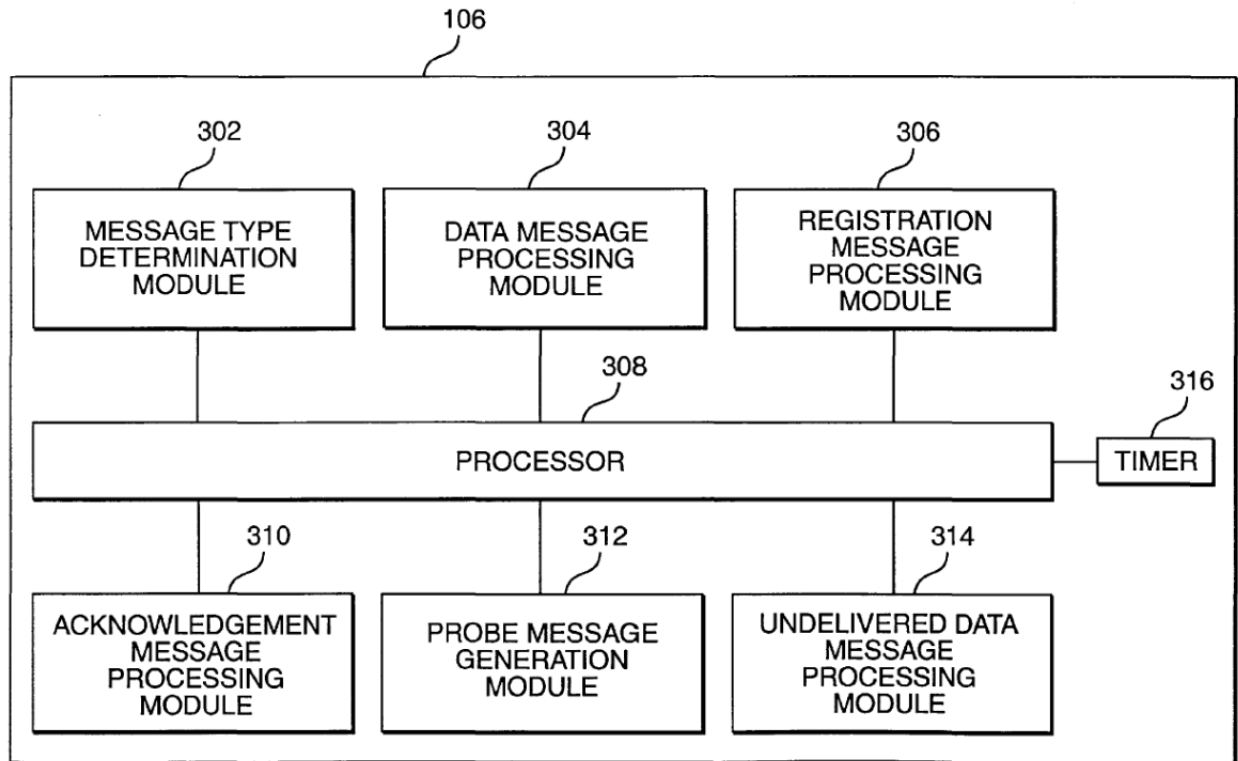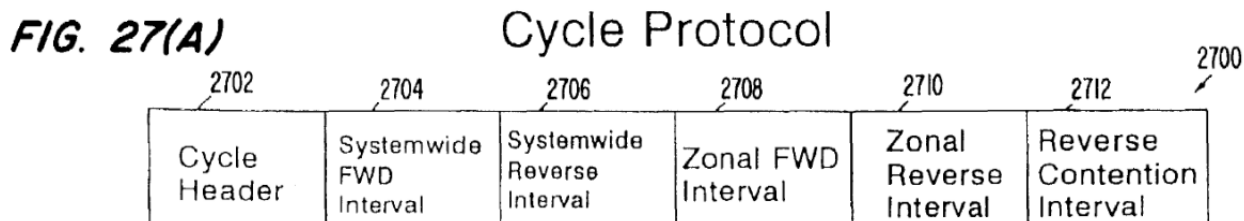
which is reproduced here:

FIG.3

As evidence of how a person of ordinary skill in the art would understand the '428

Patent, Plaintiff has cited disclosure in the related '946 Patent. *See* Dkt. No. 58 at 19-20. The

'428 Patent incorporates the '946 Patent by reference. *See* '428 Patent at 1:36-39. The '946

Patent discloses:

> Each mobile unit with transmit capability that has received a message in the
> immediately previous systemwide forward interval 2704 or the zonal forward
> interval 2708 will have an appropriate time slot for transmission scheduled in the
> systemwide response interval 2706, or the zonal reverse interval 2710,
> respectively. The timing circuit in the mobile transceiver unit determines the
> assigned time slot for transmission. For example, if the mobile unit simply
> intends to transmit an acknowledgment signal, which indicates that the mobile
> unit has properly received the message from the network, an 8 bit preamble
> followed by the address of that mobile unit need only be transmitted and a 3 bit
> acknowledgment.

'946 Patent at 27:40-53; *see id.* at Fig. 27(A). Plaintiff explains that "the AMP module 310 may

determine the ACK type based on *when* it received the ACK. As shown in FIG. 27(A) of the

'946 Patent, a probe ACK (with a proper address for a mobile unit) is expected during

System[]wide Reverse Interval 2706 while a message ACK may be expected in Zonal Reverse

Interval 2710." Dkt. No. 58 at 20. Figure 27(A) of the '946 Patent is reproduced here:

FIG. 27(A)   Cycle Protocol   2700

2702	2704	2706	2708	2710	2712
Cycle Header	Systemwide FWD Interval	Systemwide Reverse Interval	Zonal FWD Interval	Zonal Reverse Interval	Reverse Contention Interval

At the October 17, 2014 hearing, Plaintiff also cited disclosure in the '946 Patent

regarding a "service queue":

> Database 2008 of FIG. 20 also includes a service queue 2300 as shown in FIG.
> 20. The service queue 2300 includes a current messages queue and a probe list
> queue. The current messages queue includes a system wide list of messages to be
> delivered by the system. The current messages queue includes, for example, a
> series of ID number fields 2302, 2304, and 2306 with associated data location
> fields 2308, 2310, and 2312, respectively. The data location fields 2308, 2310,
> and 2312 include pointers to the appropriate fields in the user database structure
> shown in FIG. 21. The ID number fields 2302, 2304, and 2306 include data
> indicating the ID number of the user to which the message is to be delivered.
>
> In operation, the central computer retrieves the ID number 2302 and data location
> 2308 from the top of the current messages queue and retrieves the appropriate
> data from the user database 2100 to process and transmit a message to the user.
>
> The probe list queue includes a [*sic*] ID number fields 2314, 2316, and 2318 and
> data location fields 2320, 2322, and 2324 similar in form to those in the current
> messages queue. The probe list queue contains a list of users which the system
> has previously attempted unsuccessfully to deliver a message to. In other words,
> the users listed in the probe list are considered to be "lost" by the system.

'946 Patent at 21:36-59. Plaintiff also cited Figure 23 of the '946 Patent and argued that a

person of ordinary skill in the art would understand that the AMP module could cross-reference

the ID# of the ACK it received with the ID#s in the service queue to determine whether the ACK

is a data ACK or a probe ACK. Figure 23 of the '946 Patent is reproduced here:

FIG. 23

Service Queue

Current Messages		
ID#	Data Location	
2302		2308
2304		2310
2306		2312
⋮	⋮	

Probe List		
ID#	Data Location	
2314		2320
2316		2322
2318 ⋮	⋮	2324

2300

Yet, even assuming for the sake of argument that these disclosures in the '946 Patent are

sufficient, Defendant is correct that the corresponding structure is the algorithm, not the

"module," so the algorithm must appear within the '428 Patent itself rather than in any material

that is merely incorporated by reference. *See Default Proof Credit Card Sys., Inc. v. Home

Depot U.S.A., Inc.*, 412 F.3d 1291, 1301 (Fed. Cir. 2005) ("[M]aterial incorporated by reference

cannot provide the corresponding structure necessary to satisfy the definiteness requirement for a

means-plus-function clause."); *see, e.g., WMS Gaming*, 184 F.3d at 1349 ("the disclosed

structure is not the general purpose computer, but rather the special purpose computer

programmed to perform the disclosed algorithm"); *ePlus, Inc. v Lawson Software, Inc.*, 700 F.3d

509, 519 (Fed Cir. 2013) (finding lack of corresponding structure for a "means for processing"

limitation, noting: "The suggestion is that by combining the teachings of the prior art and the

[patent at issue], one of ordinary skill in the art would know how to implement the claimed

invention. . . . We disagree. The indefiniteness inquiry is concerned with whether the bounds of

the invention are sufficiently demarcated, not with whether one of ordinary skill in the art may

find a way to practice the invention.").

Even if the Court were to accept Plaintiff's argument that the '946 Patent can be

considered as evidence of "what a PHOSITA would bring to the understanding of the sufficiency of

the identified structure" in the '428 Patent (Dkt. No. 67 at 5-6), Plaintiff relies on the '946 Patent

for far more than merely "understanding," particularly in light of the paucity of relevant

disclosure in the '428 Patent. Any reliance by Plaintiff upon references to "conventional

techniques" (*see* '428 Patent at 5:59-6:1) is similarly unavailing.

Further, the above-quoted "if-then-else algorithm" set forth in the '428 Patent describes steps

that take place *after* performing the claimed function of determining whether an acknowledgement

message is an acknowledgement to a data message or an acknowledgement to a probe message.

Finally, at the October 17, 2014 hearing, Plaintiff emphasized Figure 6 of the '428 Patent,
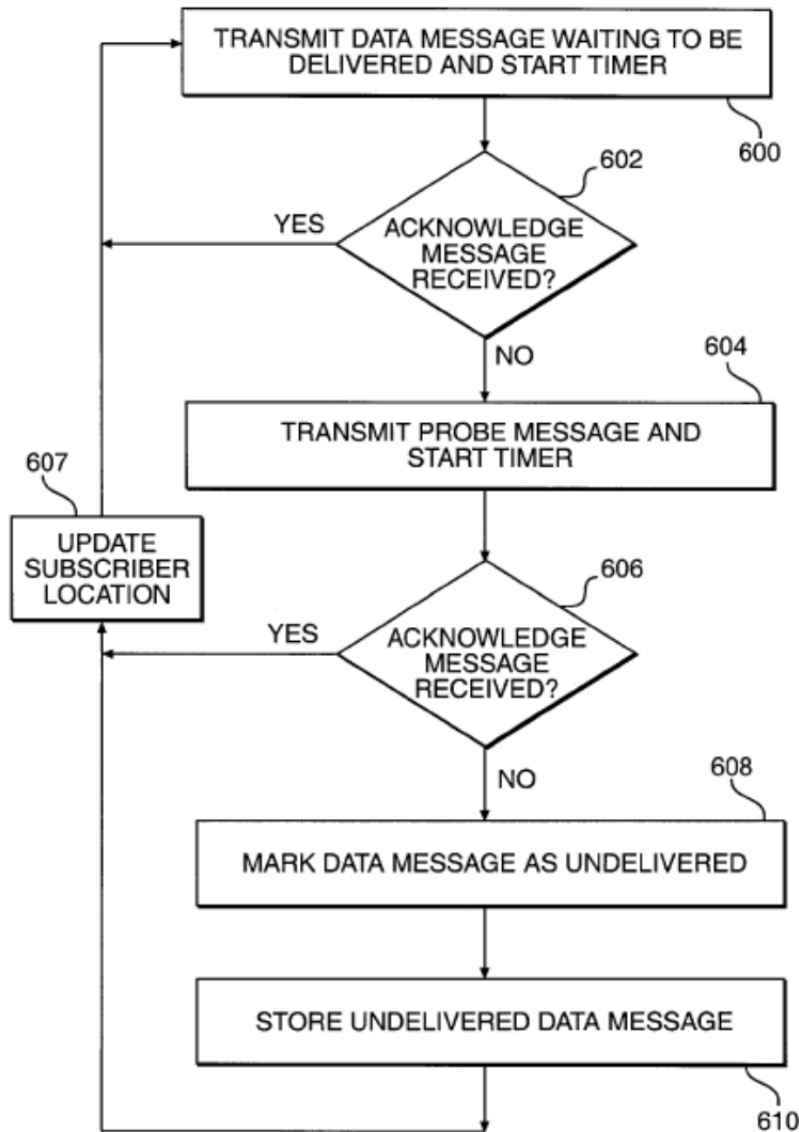
which is reproduced here:

FIG.6

Plaintiff also cited the following portion of the specification, which refers to Figure 6 and the

use of a "timer":

FIG. 6 shows a flow diagram depicting the operation of network operations center
100 in attempting data message delivery and processing undelivered data
messages, in accordance with a preferred embodiment of the present invention.
The process starts when network operations center 100 transmits a current data
message through message transmitting unit 108 to the last known location of a
corresponding mobile unit and DMP module 304 starts *timer 316* for receiving a
data acknowledgment message as described above (step 600). *MTD module 302*

then checks incoming messages to *identify a data acknowledgment message* from the corresponding mobile unit (step 602). If a data acknowledgment message is received before *timer 316* expires, then network operations center 100 repeats steps 600 and 602 to transmit the next data message waiting to be delivered.

If no data acknowledgment message is received before *timer 316* expires, then DMP module 304 requests PMG module 312 to generate a probe message. This scenario can arise, for example, when the subscriber is in flight on a airplane, and the corresponding mobile unit has changed location since its last location update to the network operations center. PMG module 312 transmits a probe message through message transmitting unit 108 to the corresponding mobile unit and starts *timer 316* for receiving a probe acknowledgment message as described above (step 604). *MTD module 302* then checks incoming messages to *identify a probe acknowledgment message* from the corresponding mobile unit (step 606). If a probe acknowledgment message is received before *timer 316* expires, then AMP module 310 updates in memory storage unit 110 the location of the corresponding mobile unit (step 607), and network operations center 100 repeats steps 600, 602, 604, and 606 to re-transmit the last data message.

If no probe acknowledgment message is received before *timer 316* expires, then PMG module 312 requests UDMP module 314 to mark the last data message transmitted as undelivered. Again, this scenario can arise when, for example, the subscriber is in flight on an airplane and the transmitter of the corresponding mobile unit is powered off because regulations prohibit transmissions from the airplane. UDMP module 314 then marks the message as undelivered (step 608) and stores it in memory storage unit 110 for future delivery (step 610).

'428 Patent at 7:15-58. The specification thus discloses that the "timer 316" is used to determine when to proceed to sending a probe message and then, if no response is received, when to mark a message as undelivered and store it. Nothing in this disclosure clearly links the "timer 316," or anything else, to the claimed function of "determining whether an acknowledgment message is an acknowledgement to a data message or an acknowledgment to a probe message." *See Telcordia*, 612 F.3d at 1376 ("the written description must clearly link or associate structure to the claimed function"); *see also Med. Instrumentation & Diagnostics*, 344 F.3d at 1219 (similar).

Indeed, further confounding Plaintiff's reliance on Fig. 6 and the above-quoted accompanying written description is the reference to "message type determination (MTD) module 302," rather than AMP module 310, as the module responsible for "identify[ing] a data

acknowledgment message" and "identify[ing] a probe acknowledgment message." *Compare* '428

Patent at 4:64-65, 7:25 & 7:40-41 with *id.* at 5:24-34 (quoted above); *see id.* at 5:8-15 ("If MTD

module 302 identifies the incoming message as a data message, then it forwards the message to DMP

module 304. If MTD module 302 identifies the incoming message as an acknowledgment message,

then it forwards the message to AMP module 310. If MTD module 302 identifies the incoming

message as a registration message, then it forwards the message to RMP module 306.").

In sum, the above-quoted disclosure in the specification that the AMP module "determines

whether the message is a data acknowledgment message or a probe acknowledgment message" ('428

Patent at 5:25-26) is merely a restatement of the claimed function, and the related disclosures and

Figures provide no algorithm, let alone any algorithm that is "clearly link[ed]" to the claimed

function. *Telcordia*, 612 F.3d at 1376. Further, expert testimony cannot remedy the absence of the

requisite linkage. *See Omega*, 334 F.3d at 1332 ("Omega impermissibly relies on expert declarations

to clearly link the claimed function and the laser splitting device, lenses, and prisms."); *see also*

ePlus, 700 F.3d at 519 (quoted above).

Thus, the disclosures relied upon by Plaintiff do not set forth a sufficient algorithm. *See*

Ergo Licensing, 673 F.3d at 1365; *see also Aristocrat Techs. Australia Pty Ltd. v. Int'l Game*

Tech., 521 F.3d 1328, 1334 (Fed. Cir. 2008) (finding that disclosed equation "is not an algorithm

that describes how the function is performed, but is merely a mathematical expression that

describes the outcome of performing the function. . . . The equation thus does not disclose the

structure of the claimed device, but is only another way of describing the claimed function.");

Blackboard, Inc. v. Desire2Learn, Inc., 574 F.3d 1371, 1384 (Fed. Cir. 2009) (discussing

Aristocrat); *Rotatable Techs.*, 2013 WL 3992930, at *12-*13 (holding that claim including the

term "means for determining a rotation point" was invalid for indefiniteness because "the

specification simply restate[d] the function to be performed"); *Augme Techs., Inc. v. Yahoo! Inc.*,

755 F.3d 1326, 1338 (Fed. Cir. 2014) ("Simply disclosing a black box that performs the recited

function is not a sufficient explanation of the algorithm required to render the means-plus-

function term definite.").

The "means for determining . . ." term recited in Claim 1 of the '428 Patent is therefore

indefinite. *See Noah Sys. v. Intuit Inc.*, 675 F.3d 1302, 1313-17, 1319 (Fed. Cir. 2012); *see also*

Net MoneyIN, 545 F.3d at 1367.

F. "means for generating upon receiving a data message, a data acknowledgment message" and "means for generating upon receiving a probe message, a probe acknowledgment message"

"means for generating upon receiving a data message, a data acknowledgment message"	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**

Function:
    "generating a data acknowledgment message"
 	
Structure:
    "acknowledgment message generating module 402; and equivalents"
	Function:
	    "generating upon receiving a data message, a data acknowledgment message"
	
	Structure:
	    Indefinite

"means for generating upon receiving a probe message, a probe acknowledgment message"	
Plaintiff's Proposed Construction	**Defendant's Proposed Construction**

Function:
    "generating a probe acknowledgment message"
 	
Structure:
    "acknowledgment message generating module 402; and equivalents"
	Function:
	    "generating upon receiving a probe message, a probe acknowledgment message"
	
	Structure:
	    Indefinite

Dkt. No. 58 at 20; Dkt. No. 64 at 24; Dkt. No. 69, Ex. A at 7. The parties submit that these

disputed terms appear in Claim 4 of the '428 Patent. Dkt. No. 43, Ex. A at 7.

Shortly before the start of the October 17, 2014 hearing, the Court provided the parties with the following preliminary construction: "Indefinite for failure to disclose an algorithm."

(1) The Parties' Positions

As to the claimed functions, Plaintiff argues that Defendant's proposals of "upon receiving a data message" and "upon receiving a probe message" are "attempt[s] to import additional [contextual] language into the function performed by the computer." Dkt. No. 58 at 15.

As to Defendant's indefiniteness argument, Plaintiff argues "under either [Plaintiff's] or [Defendant's] proposed function, the *Katz* exception applies." Dkt. No. 58 at 21.

Alternatively, Plaintiff argues that "the '428 Patent discloses that the invention could be performed by non-computer hardware such as logic circuitry," and Plaintiff also submits that "the Specification of the '428 Patent identifies sufficient structure in prose and a diagram that a PHOSITA would understand to perform the recited function." *Id.* at 22.

Defendant responds that Plaintiff is attempting to read out part of the claimed function in order to support its position that the function can be performed by a general purpose computer without special programming. Dkt. No. 64 at 24. Defendant argues that "the *Katz* exception does not apply here since a general purpose computer must be specially programmed in order to generate a data acknowledgment message upon receiving a data message." *Id.* As to the "acknowledgement message generation (AMG) module 402" cited by Plaintiff, Defendant argues "the '428 Patent specification only describes the AMG module by the function it performs." *Id.*[5]

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[5] Defendant also cites deposition testimony in which named inventor William Hayes was unable to identify any disclosure in the '428 Patent of how the AMG module generates acknowledgement messages. Dkt. No. 64, Ex. 12, 8/14/2014 Hays dep. at 87:18-25 & 89:11-18.

Plaintiff replies as to these disputed terms together with the "means for determining . . ."

term addressed above. *See* Dkt. No. 67 at 5-10.

Likewise, at the October 17, 2014 hearing, the parties addressed these disputed terms

together with the "means for determining . . ." term addressed above. Plaintiff also cited

Figure 8 of the '946 Patent. *See* '946 Patent at 10:61-11:17 (referring to Figure 8).

(2) Analysis

Relevant legal principles, regarding the algorithm requirement for means-plus-function

claims, are discussed as to the "means for determining . . ." term, above.

Claim 4 of the '428 Patent recites (emphasis added):

4. A wireless mobile unit for receiving and transmitting messages from and to a
network operations center comprising:
	means for receiving data and probe messages from the network operations
center;
	a transmitter;
	*means for generating, upon receiving a data message, a data
acknowledgment message*, said data acknowledgment message being transmitted
by said transmitter;
	*means for generating, upon receiving a probe message, a probe
acknowledgment message*, said probe acknowledgment message being transmitted
by said transmitter;
	means for powering the transmitter on and off;
	means for determining whether a probe message has been received while
said transmitter was powered off; and
	means for generating, upon power restoration to the transmitter, a
registration message if a probe message has been received while the transmitter
was powered off, said registration message being transmitted by said transmitter.

As a threshold matter, Plaintiff argues that Defendant's proposal for the function

improperly adds "superfluous language [that] is merely characteristic of the means and not part

of the function itself." *Input/Output, Inc. v. Sercel, Inc.*, No. 5:06-CV-236, 2008 WL 5427982,

at *7 (E.D. Tex. Apr. 28, 2008) (citing *Transclean Corp. v. Bridgewood Servs. Inc.*, 290 F.3d

1364, 1375 (Fed. Cir. 2002)). *Input/Output* is inapplicable, however, because whereas the Court

in *Input/Output* excluded a phrase that appeared between the words "means" and "for," the Court

included all limitations appearing after the word "for." Plaintiff's proposal to excise a portion of

the claimed function is hereby expressly rejected. *See Lockheed Martin Corp. v. Space*

Sys./Loral, Inc., 324 F.3d 1308, 1319 (Fed. Cir. 2003) ("The function of a means-plus-function

claim must be construed to include the limitations contained in the claim language.").

As to the corresponding structure, the specification discloses:

> As PMP module 410 receives a probe message from MTD module 408, it first
> determines whether transmitter 202 is powered on. If transmitter 202 is on, then
> PMP module 410 requests *AMG* [(acknowledgment message generation)] *module*
> *402* to generate a probe acknowledgment message. If transmitter 202 is off, then
> PMP module 410 transfers to display 206 a message indicating to the subscriber
> that a message awaits and stores in memory 212 control information indicating
> that a probe message has been received when transmitter 202 is powered off.

> Upon receiving from MTD module 408 or PMP module 410 a request to generate
> a data acknowledgment message or a probe acknowledgment message,
> respectively, *AMG module 402* creates the appropriate acknowledgment message
> and forwards it to transmitter 202.

'428 Patent at 6:27-40 (emphasis added); *see id.* at 6:7 ("acknowledgement message generation

(AMG) module 402").

On balance, the structure proposed by Plaintiff amounts to a general-purpose computer,

thereby triggering the algorithm requirement. *See WMS Gaming*, 184 F.3d at 1349; *see also*

HTC, 667 F.3d at 1280. For the same reasons set forth as to the "means for determining . . ."

term, above, Plaintiff's reliance on disclosure of "electronic logic circuitry" is unavailing.

As to the *Katz* exception, Plaintiff argues that "[g]enerating a message is a basic process,

performable by a general purpose computer." Dkt. No. 58 at 21 (citing *United Video*, 2012 WL

2370318, at *11 ("'[D]isplaying' an icon is a common function that can be achieved by any

general purpose computer without special programming.")). On balance, the function of

generating a specific type of message, particularly upon receiving another specific type of

message, is not performable by any general purpose computer without special programming.

The *Katz* exception therefore does not apply.

As to the algorithm requirement, Plaintiff cites the above-quoted disclosure as well as the '946 Patent, which is incorporated by reference in the '428 Patent, regarding generation of an acknowledgement:

> For example, if the mobile unit simply intends to transmit an acknowledgement signal, which indicates that the mobile unit has properly received the message from the network, an 8-bit preamble followed by the address of that mobile unit need only be transmitted and a 3 bit acknowledgement. However, if a more extensive reply from the mobile unit is required, additional data could be transferred during this time slot.

'946 Patent at 27:48-55; *see* Dkt. No. 58 at 22. As discussed above regarding the "means for determining . . ." term, however, "material incorporated by reference cannot provide the corresponding structure necessary to satisfy the definiteness requirement for a means-plus-function clause." *See Default Proof Credit Card Sys.*, 412 F.3d at 1301. Alternatively, even assuming for the sake of argument that disclosures in the '946 Patent can be considered, those disclosures are not clearly linked to the claimed function. *See Telcordia*, 612 F.3d at 1376; *see also Med. Instrumentation & Diagnostics*, 344 F.3d at 1219.

On balance, the "means for generating upon receiving . . ." terms suffer from a lack of corresponding structure and lack of an algorithm for substantially the same reasons discussed above regarding the "means for determining . . ." term.

The "means for generating upon receiving . . ." terms in Claim 4 of the '428 Patent are therefore **indefinite**. *See Noah Sys.*, 675 F.3d at 1313-17, 1319; *see also Net MoneyIN*, 545 F.3d at 1367.

G. "means for generating, upon power restoration to the transmitter, a registration message if a probe message has been received while the transmitter was powered off"

Plaintiff's Proposed Construction	Defendant's Proposed Construction
Function: "generating a registration message" Structure: "registration message generation (RMG) module 404 and/or memory 212 and processor 406; and equivalents thereof"	Function: "generating, upon power restoration to the transmitter, a registration message if a probe message has been received while the transmitter was powered off" Structure: Indefinite

Dkt. No. 58 at 23; Dkt. No. 64 at 21; Dkt. No. 69, Ex. A at 8; *see* Dkt. No. 58 at 16. The parties

submit that this disputed term appears in Claim 4 of the '428 Patent.

Shortly before the start of the October 17, 2014 hearing, the Court provided the parties

with the following preliminary construction: "Function: 'generating, upon power restoration to

the transmitter, a registration message if a probe message has been received while the transmitter

was powered off' / Corresponding structure: 'registration message generation (RMG) module

404 and memory 212; and equivalents thereof.'"

(1) The Parties' Positions

As to the claimed function, Plaintiff argues: "It would be improper to add the conditional

language 'upon power restoration to the transmitter' and 'if a probe message has been received

while the transmitter was powered off' because this language merely provides context as to when

the function is to be performed i.e. 'upon power restoration' and 'if a probe message has been

received.' Neither phrase describes the function of the processor itself, which is to generate a

registration message." Dkt. No. 58 at 15.

As to Defendant's indefiniteness argument, Plaintiff argues that "because the function is one that a general-purpose-computer is capable of performing, the *Katz* exception applies, and no further disclosure is necessary." *Id.* at 23.

Alternatively, Plaintiff argues that "the Specification of the '428 Patent recites sufficient structure in the form of prose and flowchart diagrams that disclose an algorithm." *Id.* at 24.

Defendant responds that "[Plaintiff] asks the Court to read out a significant part of the claimed function as an attempt to simplify and broaden the term and support its position that the function can be performed by a general purpose computer without special programming." Dkt. No. 64 at 21. Defendant argues that if the phrase "upon power restoration to the transmitter" "were omitted from the function, it could be read to cover a means for generating a registration message at any time, including prior to restoring power to the transmitter." *Id.* at 22. Further, Defendant urges, the *Katz* exception does not apply because a person or ordinary skill in the art "would understand a 'registration message' to be a message generated by a mobile unit to update its location to the NOC, and that generating such a message requires special programming." *Id.* Finally, Defendant argues: "[Plaintiff] points to the 'registration message generation (RMG) module and/or memory 212 and processor 406' as corresponding structure. However, . . . the specification does not describe *how* these alleged structures perform the claimed function, but only their *function*." *Id.*[6]

Plaintiff replies as to this term together with the "means for determining . . ." term addressed above. *See* Dkt. No. 67 at 5-10.

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[6] Defendant also cites deposition testimony in which named inventor William Hays agreed that Figure 10 and associate descriptions do not describe how the transmitting is done. *See* Dkt. No. 64, Ex. 12, 8/14/2014 Hays dep. at 83:19-24, 91:8-20 & 92:10-16.

<u>(2) Analysis</u>

Relevant legal principles, regarding the algorithm requirement for means-plus-function claims, are discussed as to the "means for determining . . ." term, above.

Claim 4 of the '428 Patent recites (emphasis added):

4. A wireless mobile unit for receiving and transmitting messages from and to a network operations center comprising:
      means for receiving data and probe messages from the network operations center;
      a transmitter;
      means for generating, upon receiving a data message, a data acknowledgment message, said data acknowledgment message being transmitted by said transmitter;
      means for generating, upon receiving a probe message, a probe acknowledgment message, said probe acknowledgment message being transmitted by said transmitter;
      means for powering the transmitter on and off;
      means for determining whether a probe message has been received while said transmitter was powered off; and
      means for generating, upon power restoration to the transmitter, a registration message if a probe message has been received while the transmitter was powered off, said registration message being transmitted by said transmitter.

As a threshold matter, Plaintiff's proposal to excise a portion of the claimed function is hereby expressly rejected. *See Lockheed*, 324 F.3d at 1319 ("The function of a means-plus-function claim must be construed to include the limitations contained in the claim language."). As discussed above regarding the "means for generating upon receiving . . ." terms, the *Input/Output* case cited by Plaintiff is inapplicable.

As to whether the corresponding structure identified by Plaintiff is sufficient by itself or instead amounts to a general-purpose computer, Plaintiff proposes: "registration message generation (RMG) module 404 and/or memory 212 and processor 406; and equivalents thereof." *See* '428 Patent at 6:42-57. On balance, the structure proposed by Plaintiff amounts to a general-purpose computer, thereby triggering the algorithm requirement. *See WMS Gaming*, 184 F.3d at

1349. For the same reasons set forth as to the "means for determining . . ." term, above,

Plaintiff's reliance on disclosure of "electronic logic circuitry" is unavailing.

Likewise, the *Katz* exception to the algorithm requirement does not apply because the

claimed function is not analogous to functions such as "processing," "receiving," or "storing"

that can be performed by any general-purpose computer. *See In re Katz*, 639 F.3d at 1316.

The Court therefore turns to whether the '428 Patent discloses a sufficient algorithm. *See*

Net MoneyIN, 545 F.3d at 1367; *see also WMS Gaming*, 184 F.3d at 1349.

As to the corresponding structure, the specification discloses:

FIG. 4 shows a block diagram of controller 208 of mobile unit 200, in accordance
with a preferred embodiment of the present invention. Preferably, controller 208
includes acknowledgment message generation (AMG) module 402, *registration*
message generation (RMG) module 404, processor 406, message type
determination (MTD) module 408, probe message processing (PMP) module 410,
and data message processing (DMP) module 412.

* * *

RMG module 404 generates registration messages. In a preferred embodiment of
the present invention, as transmitter 202 is powered on, *RMG module 404 checks*
memory 212 for an indication that a probe message has been received when
transmitter 202 is off. If such an indication exits, then RMG module 404 creates a
registration message and forwards it to transmitter 202.

In a preferred embodiment, modules 402, 404, 408, 410, and 412 comprise
software or microcode and any hardware necessary to effect the execution of that
software or microcode in accordance with conventional techniques. In an
alternative embodiment, modules 402, 404, 408, 410, and 412 can be
implemented in electronic logic circuitry. Processor 406 is preferably any
processor capable of executing the foregoing software or microcode and
performing the processing functions described herein.

* * *

FIG. 10 shows a flow diagram depicting the operation of mobile unit 200 in
registering upon power restoration to transmitter 202, in accordance with a
preferred embodiment of the present invention. Transmitter 202 is turned back
on, for example, when a subscriber traveling on an airplane lands (step 1000),
RMG module 404 checks memory 212 for control information indicating that

> *mobile unit 200 has received a probe message when transmitter 202 is off. If such an indication exits, then RMG module 404 sends a registration message through transmitter 202 to network operations center 100 to update the current location of mobile unit 200 (step 1002).*

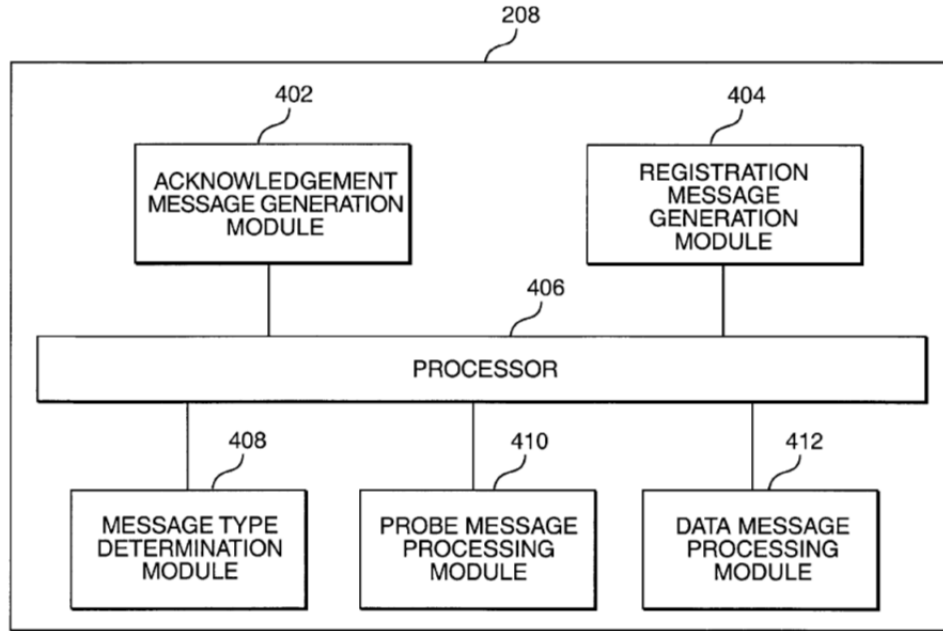'428 Patent at 6:4-11, 6:41-56 & 8:63-9:7 (emphasis added). Figures 4 and 10 are reproduced
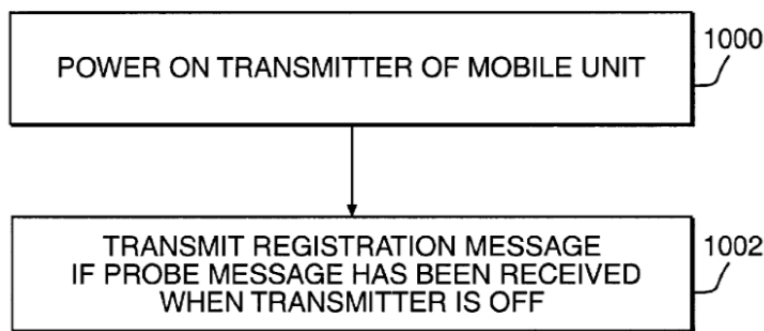
here:

FIG.4

FIG.10

On balance, these disclosures amount to a sufficient algorithm, in prose form. *See*

Typhoon Touch, 659 F.3d at 1386 ("Indeed, the mathematical algorithm of the programmer is not

included in the specification. However, as precedent establishes, it suffices if the specification

recites in prose the algorithm to be implemented by the programmer."); *see also Finisar*, 523

F.3d at 1340 (noting that "a patentee [may] express th[e] algorithm in any understandable terms

including as a mathematical formula, in prose, or as a flow chart, or in any other manner that

provides sufficient structure") (citation omitted); *TecSec*, 731 F.3d at 1348 (quoting *Finisar*).

The Court therefore finds that for the **"means for generating, upon power restoration**

to the transmitter, a registration message if a probe message has been received while the

transmitter was powered off," the function is **"generating, upon power restoration to the**

transmitter, a registration message if a probe message has been received while the

transmitter was powered off," and the corresponding structure is **"registration message**

generation (RMG) module 404, and memory 212, configured to perform the algorithm set

forth in the '428 Patent at 6:41-47; and equivalents thereof."

H. "means for marking a data message as undelivered and storing the undelivered data message if, after transmitting a probe message to the mobile unit, no probe acknowledgment message is received"

Plaintiff's Proposed Construction	Defendant's Proposed Construction

Function:
     "marking a data message as undelivered and storing the undelivered data message"
 	
Structure:
     "undelivered data message processing module 314; and equivalents thereof"
	Function:
	     "marking a data message as undelivered and storing the undelivered data message if, after transmitting a probe message to the mobile unit, no probe acknowledgment message is received"
	
	Structure:
	     Indefinite

Dkt. No. 58 at 24; Dkt. No. 64 at 27. The parties submit that this disputed term appears in

Claim 1 of the '428 Patent. Dkt. No. 43, Ex. A at 6.

Shortly before the start of the October 17, 2014 hearing, the Court provided the parties with the following preliminary construction: "Indefinite for failure to disclose an algorithm."

(1) The Parties' Positions

As to the claimed function, Plaintiff argues that Defendant's proposal of "if after transmitting a probe message to the mobile unit, no probe acknowledgment is received" refers to "characteristics of the means and merely provide[s] context as to when the function is to be performed." Dkt. No. 58 at 17.

As to Defendant's indefiniteness argument, Plaintiff argues that "[t]he '428 Patent clearly ties this function to 'undelivered data message processing module 314'" and "[t]he functions of marking and storing can be performed by a general purpose computer." *Id.* at 25. Plaintiff further explains: "'storing' is a function explicitly mentioned in *Katz*, and 'marking' is encompassed by 'processing,' as it is simply a process of manipulating data." *See* 639 F.3d at 1316.

Alternatively, Plaintiff argues that "if disclosures about 'how' to mark and store messages were required, there are substantial disclosures of algorithms a PHOSITA would understand to perform these functions within the specifications of the '428 [Patent] and [the] '946 Patent, which is incorporated into the '428 Patent by reference." Dkt. No. 58 at 25. "Marking and storing messages are such simple tasks," Plaintiff argues, "that a PHOSITA would understand them without any disclosure at all. The substantial disclosures in the '428 and '946 Patents on how messages may be marked and stored provide over and above the necessary amount of detail to a PHOSITA on how the means accomplish 'marking' and 'storing' function." *Id.* at 27.

Defendant responds that Plaintiff is attempting to read out part of the claimed function in order to support its position that the function can be performed by a general purpose computer without special programming. Dkt. No. 64 at 27. Defendant argues that the *Katz* exception does not apply because the claimed function is a specialized function that cannot be performed by a general-purpose computer. *Id.* at 27-28. As to the "undelivered data message processing (UDMP) module 314" identified by Plaintiff, Defendant responds that "the '428 Patent specification only describes the UDMP module by the marking and storing *functions* it performs. * * * Nothing in the specification describes *how* the UDMP marks and stores the data message." *Id.* at 28. In particular, Defendant further argues that Figure 6 "merely states in box 608 – 'mark data message as undelivered' – and in box 610 – 'store undelivered data message' – which are the functions." *Id.*[7]

Plaintiff replies as to this term together with the "means for determining . . ." term addressed above. *See* Dkt. No. 67 at 5-10.

Likewise, at the October 17, 2014 hearing, the parties addressed this disputed term together with the "means for determining . . ." term addressed above. Plaintiff also cited *Elan Microelectronics Corp. v. Pixcir Microelectronics Co., Ltd.*, as authority for the applicability of the *Katz* exception (discussed below). No. 2:10-cv-14, 2013 WL 2394358 (D. Nev. May 30, 2013) (finding the *Katz* exception applicable to a "means for detecting a distance between said first and second maxima"); *see* Dkt. No. 58 at 14 n.9 (citing other similar district court decisions).

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[7] Defendant also cites deposition testimony by named inventor William Hays that Figure 6 and related disclosures do not describe how data messages are marked as undeliverable and stored. Dkt. No. 64, Ex. 12, 8/14/2014 Hays dep. at 95:10-96:8 & 97:22-99:5.

(2) Analysis

Claim 1 of the '428 Patent recites (emphasis added):

1. A network operations center for transmitting and receiving messages to and
from a wireless mobile unit comprising:
      means for transmitting messages to the mobile unit;
      means for receiving acknowledgment messages from the mobile unit;
      means for determining whether an acknowledgment message is an
acknowledgment to a data message or an acknowledgment to a probe message;
      means for transmitting a probe message to the mobile unit if, after
transmitting a data message to the mobile unit, no data acknowledgment message
is received; and
      *means for marking a data message as undelivered and storing the
undelivered data message if, after transmitting a probe message to the mobile
unit, no probe acknowledgment message is received.*

As a threshold matter, Plaintiff's proposal to excise a portion of the claimed function is

hereby expressly rejected. *See Lockheed*, 324 F.3d at 1319 ("The function of a means-plus-

function claim must be construed to include the limitations contained in the claim language.").

As discussed above regarding the "means for generating upon receiving . . ." terms, the

Input/Output case cited by Plaintiff is inapplicable.

On balance, the structure proposed by Plaintiff amounts to a general-purpose computer,

thereby triggering the algorithm requirement. *See WMS Gaming*, 184 F.3d at 1349; *see also*

HTC, 667 F.3d at 1280. For the same reasons set forth as to the "means for determining . . ."

term, above, Plaintiff's reliance on disclosure of "electronic logic circuitry" is unavailing.

Further, the *Katz* exception to the algorithm requirement does not apply because "marking

a data message as undelivered and storing the undelivered data message if, after transmitting a probe

message to the mobile unit, no probe acknowledgment message is received" is not analogous to

functions such as "processing," "receiving," or "storing" that can be performed by any general-

purpose computer. *See In re Katz*, 639 F.3d at 1316. The opinions of Plaintiff's expert to the

contrary are unavailing. *See* Dkt. No. 58, Ex. P, 8/1/2014 Declaration of Dr. Ray W. Nettleton

at 32 ("Were the Court to find that a computer is required to perform the recited function, it is

my opinion that a general-purpose computer would be able to perform the recited function

without special programming.").

As to the algorithm requirement, the specification discloses:

If no probe acknowledgment message is received before timer 316 expires, then *PMG* [(probe message generation)] *module 312 requests UDMP module 314 to mark the last data message transmitted as undelivered.* Again, this scenario can arise when, for example, the subscriber is in flight on an airplane and the transmitter of the corresponding mobile unit is powered off because regulations prohibit transmissions from the airplane. *UDMP module 314 then marks the message as undelivered (step 608) and stores it in memory storage unit 110 for future delivery (step 610).*

'428 Patent at 7:49-58 (emphasis added); *see id.* at 5:1 ("probe message generation (PMG)

module 312").

Plaintiff also submits that "the '946 Patent discloses [an] algorithm that a message is

considered to be marked undelivered, for example, if the 'receive flag' is unset":

For example, the user database structure shown in FIG. 21 includes a record for each user of the system who possesses a mobile unit. The record for user 1 2100 includes various fields, such as an ID number field 2102 which indicates a unique number associated with that particular user.

* * *

The message field 2112 includes data representing one or more messages which are intended for the user. A receive flag is set when the central computer has received data indicating that the message has been received by the mobile unit via an acknowledgment signal. If the mobile unit does not have transmit capability, the receive flag is set upon transmission of the message by the appropriate base transmitters. The user database structure may include other fields for each user of the communication system of the present invention as needed to provide various desired services.

'946 Patent at 20:32-36 & 20:58-67; *see id.* at Fig. 27(B) & 27(C) (illustrating headers).

First, "material incorporated by reference cannot provide the corresponding structure

necessary to satisfy the definiteness requirement for a means-plus-function clause." *See Default*

Proof Credit Card Sys., 412 F.3d at 1301. Second, as Defendant has argued, none of the

statements in the '946 Patent cited by Plaintiff is linked to the marking and storing function, let

alone describes how that function is performed. *See* Dkt. No. 64 at 29-30; *see also Omega*

Eng'g, 334 F.3d at 1321.

In sum, the "means for marking . . ." term suffers from a lack of corresponding structure

and lack of an algorithm for substantially the same reasons discussed above regarding the

"means for determining . . ." term.

The "means for marking . . ." term recited in Claim 1 of the '428 Patent is therefore

indefinite. *See Noah Sys.*, 675 F.3d at 1313-17, 1319; *see also Net MoneyIN*, 545 F.3d at 1367.

I. "means for automatically transmitting undelivered data messages to the mobile unit upon receiving a registration message from the mobile unit"

Plaintiff's Proposed Construction	Defendant's Proposed Construction

Function:
    "automatically transmitting undelivered data messages to the mobile unit"
 	
Structure:
    "message transmitting unit 108; and equivalents thereof"
	Function:
	    "automatically transmitting undelivered data messages to the mobile unit upon receiving a registration message from the mobile unit"
	
	Structure:
	    Indefinite

Dkt. No. 58 at 28; Dkt. No. 64 at 25. The parties submit that this disputed term appears in

Claim 2 of the '428 Patent. Dkt. No. 43, Ex. A at 6.

Shortly before the start of the October 17, 2014 hearing, the Court provided the parties

with the following preliminary construction: "Function: 'automatically transmitting undelivered

data messages to the mobile unit upon receiving a registration message from the mobile unit' /

Corresponding Structure: 'registration message processing (RMP) module 306, memory storage

unit 110, and message transmitting unit 108; and equivalents thereof.'"

<u>(1) The Parties' Positions</u>

As to the claimed function, Plaintiff argues that Defendant's proposal of "upon receiving a registration message from the mobile unit" is an "attempt[] to import additional [contextual] language into the function performed by the computer." Dkt. No. 58 at 15.

As to Defendant's indefiniteness argument, Plaintiff notes that Defendant "does not dispute that the other 'means for transmitting' terms in the '428 Patent find corresponding structure in message transmitting unit 108." *Id.* at 29 (citing Dkt. No. 43, Ex. A at 2-3). Plaintiff also argues that "the '428 Patent discloses a sufficient algorithm to explain to a PHOSITA how a computer could be programmed to perform [Defendant's] proposed function," and in particular Plaintiff identifies Figure 8. Dkt. No. 58 at 29; *see id.* at 30.

Defendant responds that Plaintiff is attempting to read out part of the claimed function in order to support its position that the function can be performed by a general purpose computer without special programming. Dkt. No. 64 at 26. Defendant argues "the *Katz* exception does not apply since a general purpose computer cannot 'automatically transmit[] undelivered data messages to the mobile unit upon receiving a registration message from the mobile unit." *Id.* As to the disclosures in the specification, Defendant argues that "it is the RMP module 408 [*sic*, 306] that transmits undelivered data messages," not the "message transmitting unit 108." *Id.* Nonetheless, Defendant urges that "there is no algorithm disclosed for how such transmission occurs, with respect to either the RMP module or the generic 'message transmitting unit.'" *Id.* In particular, Defendant submits that "Figure 8 at step 800 simply recites the *function* of

automatically transmitting data messages upon receiving a registration message from the mobile

unit." *Id.*[8]

Plaintiff replies as to this term together with the "means for determining . . ." term

addressed above. *See* Dkt. No. 67 at 5-10. Plaintiff also replies as to the present disputed term

that "[t]ransmitting messages . . . is well understood in the art, and a PHOSITA would need only

message transmitting unit 108, rather than some algorithmic disclosure." Dkt. No. 67 at 8.

Further, Plaintiff submits, "to the extent that the Court agrees with [Defendant's] identification

of the claimed function, [Plaintiff] does not disagree that RMP module 306 is the clearly linked

corresponding structure for the 'automatically . . . upon receiving a registration message from the

mobile unit' portion of the claim term." *Id.*

At the October 17, 2014 hearing, the parties addressed this disputed term together with

the "means for determining . . ." term addressed above.

(2) Analysis

Claim 2 of the '428 Patent depends from Claim 1, which is reproduced in the discussions

of the "means for determining . . ." and "means for marking . . ." terms, above. Claim 2 of the

'428 Patent recites (emphasis added):

> 2. The network operations center according to claim 1, further comprising:
>   means for receiving registration messages from the mobile unit; and
>   *means for automatically transmitting undelivered data messages to the*
> *mobile unit upon receiving a registration message from the mobile unit*.

As a threshold matter, Plaintiff's proposal to excise a portion of the claimed function is

hereby expressly rejected. *See Lockheed*, 324 F.3d at 1319 ("The function of a means-plus-

function claim must be construed to include the limitations contained in the claim language.").

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[8] Defendant also cites deposition testimony in which named inventor William Hays described
disclosures as "functional descriptions." Dkt. No. 64, Ex. 12, 8/14/2014 Hays dep.
at 92:20-93:11.

As discussed above regarding the "means for generating upon receiving . . ." terms, the

Input/Output case cited by Plaintiff is inapplicable.

On balance, the structure proposed by Plaintiff amounts to a general-purpose computer,

thereby triggering the algorithm requirement. *See WMS Gaming*, 184 F.3d at 1349; *see also*

HTC, 667 F.3d at 1280. For the same reasons set forth as to the "means for determining . . ."

term, above, Plaintiff's reliance on disclosure of "electronic logic circuitry" is unavailing.

As to the algorithm requirement, the specification discloses:

> FIG. 8 shows a flow diagram depicting a method of transmitting undelivered data
> messages upon mobile unit registration, in accordance with a preferred
> embodiment of the present invention. The process starts when network operations
> center 100 receives through message receiving unit 104 an incoming message
> which MTD module 302 determines to be a registration message (step 800). A
> registration message may be sent by a mobile unit upon power restoration to the
> transmitter of the mobile unit if a probe message has been received when the
> transmitter is powered off. *RMP* [(registration message processing)] *module 306*
> then updates in *memory storage unit 110* the location of the corresponding mobile
> unit as described above (step 802) and transmits through *message transmitting*
> *unit 108* any undelivered data messages stored in *memory storage unit 110* (step
> 804).

'428 Patent at 8:28-42 (emphasis added); *see id.* at 4:66 ("registration message processing

(RMP) module 306").

This disclosure amounts to a sufficient algorithm in prose form. *See Typhoon Touch*, 659

F.3d at 1386 ("Indeed, the mathematical algorithm of the programmer is not included in the

specification. However, as precedent establishes, it suffices if the specification recites in prose

the algorithm to be implemented by the programmer."); *see also Finisar*, 523 F.3d at 1340

(noting that "a patentee [may] express th[e] algorithm in any understandable terms including as a

mathematical formula, in prose, or as a flow chart, or in any other manner that provides

sufficient structure") (citation omitted); *TecSec*, 731 F.3d at 1348 (quoting *Finisar*).

The Court therefore finds that for the **"means for automatically transmitting undelivered data messages to the mobile unit upon receiving a registration message from the mobile unit,"** the function is **"automatically transmitting undelivered data messages to the mobile unit upon receiving a registration message from the mobile unit,"** and the corresponding structure is **"registration message processing (RMP) module 306, memory storage unit 110, and message transmitting unit 108, configured to perform the algorithm set forth in the '428 Patent at 8:28-42; and equivalents thereof."**

CONCLUSION

The Court adopts the constructions set forth in this opinion for the disputed terms of the patents-in-suit.

As further set forth above regarding the terms "means for determining whether an acknowledgment message is an acknowledgment to a data message or an acknowledgment to a probe message" and "means for marking a data message as undelivered and storing the undelivered data message if, after transmitting a probe message to the mobile unit, no probe acknowledgment message is received," the Court finds that Claim 1 of the '428 Patent is invalid as indefinite.

As further set forth above regarding the terms "means for generating upon receiving a data message, a data acknowledgment message" and "means for generating upon receiving a probe message, a probe acknowledgment message," the Court finds that Claim 4 of the '428 Patent is invalid as indefinite.

The parties are ordered that they may not refer, directly or indirectly, to each other's claim construction positions in the presence of the jury. Likewise, the parties are ordered to refrain from mentioning any portion of this opinion, other than the actual definitions adopted by

the Court, in the presence of the jury. Any reference to claim construction proceedings is limited to informing the jury of the definitions adopted by the Court.

SIGNED this 5th day of November, 2014.

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ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE

APPENDIX A

U.S. Patent No. 5,754,946	
Term	Parties' Agreement
"switch actuatable" (Claims 1 & 7)	"a switch that requires user activation"
"only upon actuation of the switch" (Claim 1)	"plain meaning"
"only upon receipt of the indication" (Claim 8)	"plain meaning"

"means for retransmitting radio frequency signals containing the portion of the message to the mobile unit"
 	
(Claim 7)
	Function:
	    "retransmitting radio frequency signals containing the portion of the message to the mobile unit"
	
	Structure:
	    "base transmitter 612, base transmitter 614, base transmitter 1300, or base transmitter 1400; and equivalents thereof"

"means for receiving specified portion retransmitted from the communications network and for displaying the received portion on the display"
 	
(Claim 1)
	Function:
	    "receiving said specified portion retransmitted from the communications network and displaying the received portion on the display"
	
	Structure:
	    "receiver 1506, display 1514; and equivalents thereof"

"means for transmitting radio frequency signals containing a message to the mobile unit"
 	
(Claim 7)
	Function:
	    "transmitting radio frequency signals containing a message to the mobile unit"
	
	Structure:
	    "base transmitter 612, base transmitter 614, base transmitter 1300, or base transmitter 1400; and equivalents thereof"

"means for receiving, from the mobile unit, radio frequency signals representing a portion of the message that the user desires retransmission"
 	
(Claim 7)
	Function:
	    "receiving, from the mobile unit, radio frequency signals representing a portion of the message that the user desires retransmission"
	
	Structure:
	    "base receiver 628, base receiver 630, base receiver 632, base receiver 634, analog base receiver (Fig. 18(A)); digital base receiver (Fig. 18(b)); or base receiver (Fig. 19); and equivalents thereof"

"message" (Claims 1, 3, 5, 7 & 8)	"plain meaning"
"receiving an indication of [a portion of the displayed message for which a user desires retransmission]" (Claim 8)	"plain meaning"
"retransmission" / "retransmitted" / "retransmitting" (Claims 1, 3, 5, 7 & 8)	"plain meaning"
"error correcting code" (Claims 3 & 5)	"plain meaning"

U.S. Patent No. 5,809,428	
Term	Parties' Agreement

"means for powering the transmitter on and off"
 	
(Claim 4)
	Function:
	    "powering the transmitter on and off"
	
	Structure:
	    "transmitter power switch 504; and equivalents thereof"

"means for transmitting messages to the mobile unit"
 	
(Claim 1)
	Function:
	    "transmitting messages to the mobile unit"
	
	Structure:
	    "message transmitting unit 108; and equivalents thereof"

"means for receiving acknowledgment messages from the mobile unit"
 	
(Claim 1)
	Function:
	    "receiving acknowledgment messages from the mobile unit"
	
	Structure:
	    "message receiving unit 104; and equivalents thereof"

"means for transmitting a probe message to the mobile unit if, after transmitting a data message to the mobile unit, no data acknowledgment is received"
 	
(Claim 1)
	Function:
	    "transmitting a probe message to the mobile unit if, after transmitting a data message to the mobile unit, no data acknowledgment is received"
	
	Structure:
	    "message transmitting unit 108; and equivalents thereof"

"means for receiving registration messages from the mobile unit"
 	
(Claim 2)
	Function:
	    "receiving registration messages from the mobile unit"
	
	Structure:
	    "message receiving unit 104; and equivalents thereof"

"means for receiving data and probe messages from the network operations center"
 	
(Claim 4)
	Function:
	    "receiving data and probe messages from the network operations center"
	
	Structure:
	    "receiver 204; and equivalents thereof"

"means for determining whether a probe message has been received while said transmitter was powered off"
 	
(Claim 4)
	Function:
	    "determining whether a probe message has been received while said transmitter was powered off"
	
	Structure:
	    "registration message generating module 404; or registration message generating module 404 and memory 212; and equivalents thereof""

"registration message" (Claims 2, 4 & 9)	"plain meaning"
"marking [at the network operations center] a data message as undelivered" (Claims 1 & 8)	"plain meaning"
"said registration message being transmitted by said transmitter" (Claim 4)	"plain meaning"
"said data acknowledgment message being transmitted by said transmitter" (Claim 4)	"plain meaning"
"said probe acknowledgment message being transmitted by said transmitter" (Claim 4)	"plain meaning"

U.S. Patent No. 5,786,748	
Term	Parties' Agreement
"wireless page message" (Claim 1)	"message sent to or from a wireless device in a paging network"
"page number" (Claim 1)	"number assigned to a wireless device in a paging network"
"paging operations center" (Claim 1)	"center operable for sending messages to a wireless device in a paging network"
"notifying the recipient that the express mailing has not been delivered by the appointed time" (Claim 1)	"plain meaning"

Dkt. No. 43 at Ex. A; Dkt. No. 69 at Ex. B.